

AMENDMENT OF SOLICITATION/MODIFICATION OF CONTRACT				1. CONTRACT ID CODE NA		PAGE OF PAGES 1 1	
2. AMENDMENT/MODIFICATION NO. 0001		3. EFFECTIVE DATE 14 MAY 2001		4. REQUISITION/PURCHASE REQ. NO.		5. PROJECT NO. (If applicable) NA	
6. ISSUED BY U.S.ARMY ENGINEER DISTRICT, LOS ANGELES P.O. BOX 532711 LOS ANGELES, CA 90053-2325		CODE		7. ADMINISTERED BY (If other than Item 6) CODE			
8. NAME AND ADDRESS OF CONTRACTOR (No., street, county, State and ZIP Code)				(✓)		9A. AMENDMENT OF SOLICITATION NO. DACW09-01-B-0004	
				X		9B. DATED (SEE ITEM 11) 24 MAY 2001(BID OPENING)	
						10A. MODIFICATION OF CONTRACTS/ORDER NO.	
						10B. DATED (SEE ITEM 13)	
CODE				FACILITY CODE			

11. THIS ITEM ONLY APPLIES TO AMENDMENTS OF SOLICITATIONS

☒ The above numbered solicitation is amended as set forth in Item 14. The hour and date specified for receipt of Offers ☐ is extended, ☒ is not extended.

Offers must acknowledge receipt of this amendment prior to the hour and date specified in the solicitation or as amended, by one of the following methods:

(a) By completing Items 8 and 15, and returning 1 copies of the amendment; (b) By acknowledging receipt of this amendment on each copy of the offer submitted; or (c) By separate letter or telegram which includes a reference to the solicitation and amendment numbers. FAILURE OF YOUR ACKNOWLEDGMENT TO BE RECEIVED AT THE PLACE DESIGNATED FOR THE RECEIPT OF OFFERS PRIOR TO THE HOUR AND DATE SPECIFIED MAY RESULT IN REJECTION OF YOUR OFFER. If by virtue of this amendment you desire to change an offer already submitted, such change may be made by telegram or letter, provided each telegram or letter makes reference to the solicitation and this amendment, and is received prior to the opening hour and date specified.

12. ACCOUNTING AND APPROPRIATION DATA (If required)

**13. THIS ITEM APPLIES ONLY TO MODIFICATIONS OF CONTRACTS/ORDERS,
IT MODIFIES THE CONTRACT/ORDER NO. AS DESCRIBED IN ITEM 14.**

- (✓) A. THIS CHANGE ORDER IS ISSUED PURSUANT TO: (Specify authority) THE CHANGES SET FORTH IN ITEM 14 ARE MADE IN THE CONTRACT ORDER NO. IN ITEM 10A.
- B. THE ABOVE NUMBERED CONTRACT/ORDER IS MODIFIED TO REFLECT THE ADMINISTRATIVE CHANGES (such as changes in paying office, appropriation date, etc.) SET FORTH IN ITEM 14, PURSUANT TO THE AUTHORITY OF FAR 43.103(b).
- C. THIS SUPPLEMENTAL AGREEMENT IS ENTERED INTO PURSUANT TO AUTHORITY OF:
- D. OTHER (Specify type of modification and authority)

E. IMPORTANT: Contractor ☐ is not, ☐ is required to sign this document and return _____ copies to the issuing office.

14. DESCRIPTION OF AMENDMENT/MODIFICATION (Organized by UCF section headings, including solicitation/contract subject matter where feasible.)

SANTA PAULA CREEK CHANNEL IMPROVEMENTS, REACH 3, INCLUDING FISH LADDER, VENTURA COUNTY, CALIFORNIA.

AMENDMENT 0001 IS ISSUED TO REPLACE THE FOLLOWING SPECIFICATION SECTIONS AND DRAWINGS:

STANDARD FORM 1442, SECTION 00800 "SPECIAL CONTRACT REQUIREMENTS", SECTION 00850 "WAGE RATES", SECTION 01130 "ENVIRONMENTAL PROTECTION", SECTION 01440 "CONTRACTOR QUALITY CONTROL", SECTION 02700 "SIDEDRAINS", SECTION 02950 "TREES, SHRUBS, GROUND COVER AND VINES", SECTION 03101 "FORMWORK FOR CONCRETE", SECTION 03307 "CONCRETE FOR MINOR STRUCTURES", DRAWING SHEET 1 (DISTRICT FILE NO.237/105), DRAWING SHEET 14 (DISTRICT FILE NO.237/118), DRAWING SHEET 17 (DISTRICT FILE NO. 237/121).

Except as provided herein, all terms and conditions of the document referenced in Item 9A or 10A, as heretofore changed, remains unchanged and in full force and effect.

15A. NAME AND TITLE OF SIGNER (Type or print)		16A. NAME AND TITLE OF CONTRACTING OFFICER (Type or print)	
15B. CONTRACTOR/OFFEROR (Signature of person authorized to sign)		16B. UNITED STATES OF AMERICA BY _____ (Signature of Contracting Officer)	
15C. DATE SIGNED		16C. DATE SIGNED	

SOLICITATION, OFFER, AND AWARD <i>(Construction, Alteration, or Repair)</i>		1. SOLICITATION NO. DACW09-01-B-0004	2. TYPE OF SOLICITATION <input checked="" type="checkbox"/> SEALED BID (IFB) <input type="checkbox"/> NEGOTIATED (RFP)	3. DATE ISSUED 24-Apr '2001	PAGE OF PAGES
IMPORTANT - The "offer" section on the reverse must be fully completed by offeror.					
4. CONTRACT NO.		5. REQUISITION/PURCHASE REQUEST NO.		6. PROJECT NO.	
7. ISSUED BY USAED-LOS ANGELES P.O. Box 532711 LOS ANGELES, CA 90053-2325		CODE		8. ADDRESS OFFER TO SEE ITEM NO. 7	
9. FOR INFORMATION CALL		A. NAME JULIE AYALA		B. TELEPHONE NO. (Include area code) (NO COLLECT CALLS) 213/452-3241	

SOLICITATION

NOTE: In sealed bid solicitations "offer" and "offeror" mean "bid" and "bidder".

10. THE GOVERNMENT REQUIRES PERFORMANCE OF THE WORK DESCRIBED IN THESE DOCUMENTS (Title, identifying no., date):

SANTA PAULA CREEK CHANNEL IMPROVEMENTS, REACH 3, INCLUDING FISH LADDER,
 VENTURA COUNTY, CALIFORNIA

THE ESTIMATED COST RANGE OF THIS PROCUREMENT IS \$1,000,000.00 - \$5,000,000.00

BIDDERS PLEASE NOTE: THIS PROJECT MAY BE DELAYED, CANCELLED OR REVISED AT ANY TIME DURING THE SOLICITATION, NEGOTIATION AND/OR FINAL AWARD PROCESS.

THIS IS A 100% SMALL BUSINESS SET-ASIDE PROCUREMENT.

11. The Contractor shall begin performance within <u>1</u> calendar days and complete it within <u>455</u> calendar days after receiving <input checked="" type="checkbox"/> award, <input type="checkbox"/> notice to proceed. This performance period is <input checked="" type="checkbox"/> mandatory, <input type="checkbox"/> negotiable. (See <u>SECTION 00800</u>)	
12A. THE CONTRACTOR MUST FURNISH ANY REQUIRED PERFORMANCE AND PAYMENT BONDS? (If "YES," indicate within how many calendar days after award in Item 12B.) <input checked="" type="checkbox"/> YES <input type="checkbox"/> NO	12B. CALENDAR DAYS 10
13. ADDITIONAL SOLICITATION REQUIREMENTS:	
A. Sealed offers in original and <u>0</u> copies to perform the work required are due at the place specified in Item 8 by <u>1:00 P.M.</u> (hour) local time <u>24 MAY 2001</u> (date). If this is a sealed bid solicitation, offers will be publicly opened at that time. Sealed envelopes containing offers shall be marked to show the offeror's name and address, the solicitation number, and the date and time offers are due.	
B. An offer guarantee <input checked="" type="checkbox"/> is, <input type="checkbox"/> is not required.	
C. All offers are subject to the (1) work requirements, and (2) other provisions and clauses incorporated in the solicitation in full text or by reference.	
D. Offers providing less than <u>60</u> calendar days for Government acceptance after the date offers are due will not be considered and will be rejected.	

OFFER (Must be fully completed by offeror)

14. NAME AND ADDRESS OF OFFEROR (Include ZIP Code)

15. TELEPHONE NO. (Include area code)

16. REMITTANCE ADDRESS (Include only if different than Item 14)

CAGE CODE:

DUNS NO.

CODE

FACILITY CODE

17. The offeror agrees to perform the work required at the prices specified below in strict accordance with the terms of this solicitation, if this offer is accepted by the Government in writing within _____ calendar days after the date offers are due. (Insert any number equal to or greater than the minimum requirement stated in Item 13D. Failure to insert any number means the offeror accepts the minimum in Item 13D.)

AMOUNTS

▶ SEE PRICING SCHEDULE

18. The offeror agrees to furnish any required performance and payment bonds.

19. ACKNOWLEDGMENT OF AMENDMENTS

(The offeror acknowledges receipt of amendments to the solicitation - give number and date of each)

AMENDMENT NO.

DATE

20A. NAME AND TITLE OF PERSON AUTHORIZED TO SIGN OFFER
(Type or print)

20B. SIGNATURE

20C. OFFER DATE

AWARD (To be completed by Government)

21. ITEMS ACCEPTED:

22. AMOUNT:

23. ACCOUNTING AND APPROPRIATION DATA

24. SUBMIT INVOICES TO ADDRESS SHOWN IN
(4 Copies unless otherwise specified)

ITEM

25. OTHER THAN FULL AND OPEN COMPETITION PURSUANT TO

☐ 10 U.S.C 2304(c) ()☐ 41 U.S.C 253(c) ()

26. ADMINISTERED BY

CODE

27. PAYMENT WILL BE MADE BY

CONTRACTING OFFICER WILL COMPLETE ITEM 28 OR 29 AS APPLICABLE

☐ 28. NEGOTIATED AGREEMENT Contractor is required to sign this document and return _____ copies to issuing office.) Contractor agrees to furnish and deliver all items or perform all work requirements identified on this form and any continuation sheets for the consideration stated in this contract. The rights and obligations of the parties to this contract shall be governed by (a) this contract award, (b) the solicitation, and (c) the clauses, representations, certifications, and specifications incorporated by reference in or attached to this contract.

☐ 29. AWARD (Contractor is not required to sign this document.) Your offer on this solicitation is hereby accepted as to the items listed. This award consummates the contract, which consists of (a) the Government solicitation and your offer, and (b) this contract award. No further contractual document is necessary.

30A. NAME AND TITLE OF CONTRACTOR OR PERSON AUTHORIZED TO SIGN (Type or print)

31A. NAME OF CONTRACTING OFFICER (Type or print)

30B. SIGNATURE

30C. DATE

31B. UNITED STATES OF AMERICA

BY

31C. AWARD DATE

SECTION 00800 Special Contract Requirements Error! Bookmark not defined.

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CONTRACT ADMINISTRATION DATA

The Contract Administration Office for this contract subsequent to award is:

Department of the Army
 Los Angeles District, Corps of Engineers
 P.O. Box 532711
 Los Angeles, California 90053-2325

ATTN: Daniel Moore
 Telephone No: (909) 981-5571

Payment will be made by:

USACE Finance Center
ATTN: CEFC-AO-P
5270 Integrity Drive
Millington, TN 38054-5005

Submit Invoices to:

Refer to Block No. 26 of the Standard Form 1442, "Solicitation, Offer and Award" which will be completed at time of contract award.

52.211-10 COMMENCEMENT, PROSECUTION, AND COMPLETION OF WORK
(APR 1984) *Amendment #1*

The Contractor shall be required to: (a) commence work under this contract within 1 calendar day after the date the Contractor receives the notice to proceed, (b) prosecute the work diligently, and (c) complete the entire work ready for use not later than **455** calendar days after the Contractor receives the Notice to Proceed. The contractor will be required to complete all work within the channel invert including the fish ladder and all grouted stone for the invert and side-slopes by November 1, 2001. The Notice of Award constitutes the Notice to proceed. The Notice to Proceed will be provided at the time of notice of award. The time stated for completion shall include final cleanup of the premises.

(End of clause)

52.211-12 LIQUIDATED DAMAGES--CONSTRUCTION (SEP 2000)

(a) If the Contractor fails to complete the work within the time specified in the contract, the Contractor shall pay liquidated damages to the Government in the amount of \$ 839.00 for each calendar day of delay until the work is completed or accepted.

(b) If the Government terminates the Contractor's right to proceed, liquidated damages will continue to accrue until the work is completed. These liquidated damages are in addition to excess costs of repurchase under the Termination clause.

(End of clause)

52.211-18 VARIATION IN ESTIMATED QUANTITY (APR 1984)

If the quantity of a unit-priced item in this contract is an estimated quantity and the actual quantity of the unit-priced item varies more than 15 percent above or below the estimated quantity, an equitable adjustment in the contract price shall be made upon demand of either party. The equitable adjustment shall be based upon any increase or decrease in costs due solely to the variation above 115 percent or below 85 percent of the estimated

quantity. If the quantity variation is such as to cause an increase in the time necessary for completion, the Contractor may request, in writing, an extension of time, to be received by the Contracting Officer within 10 days from the beginning of the delay, or within such further period as may be granted by the Contracting Officer before the date of final settlement of the contract. Upon the receipt of a written request for an extension, the Contracting Officer shall ascertain the facts and make an adjustment for extending the completion date as, in the judgement of the Contracting Officer, is justified.

52.222-23 NOTICE OF REQUIREMENT FOR AFFIRMATIVE ACTION TO ENSURE EQUAL EMPLOYMENT OPPORTUNITY FOR CONSTRUCTION (FEB 1999)

(a) The offeror's attention is called to the Equal Opportunity clause and the Affirmative Action Compliance Requirements for Construction clause of this solicitation.

(b) The goals for minority and female participation, expressed in percentage terms for the Contractor's aggregate workforce in each trade on all construction work in the covered area, are as follows:

Goals for minority participation for each trade	Goals for female participation for each trade
21% – 22%	6.9%

These goals are applicable to all the Contractor's construction work performed in the covered area. If the Contractor performs construction work in a geographical area located outside of the covered area, the Contractor shall apply the goals established for the geographical area where the work is actually performed. Goals are published periodically in the Federal Register in notice form, and these notices may be obtained from any Office of Federal Contract Compliance Programs office.

(c) The Contractor's compliance with Executive Order 11246, as amended, and the regulations in 41 CFR 60-4 shall be based on (1) its implementation of the Equal Opportunity clause, (2) specific affirmative action obligations required by the clause entitled "Affirmative Action Compliance Requirements for Construction," and (3) its efforts to meet the goals. The hours of minority and female employment and training must be substantially uniform throughout the length of the contract, and in each trade. The Contractor shall make a good faith effort to employ minorities and women evenly on each of its projects. The transfer of minority or female employees or trainees from Contractor to Contractor, or from project to project, for the sole purpose of meeting the Contractor's goals shall be a violation of the contract, Executive Order 11246, as amended, and the regulations in 41 CFR 60-4. Compliance with the goals will be measured against the total work hours performed.

(d) The Contractor shall provide written notification to the Deputy Assistant Secretary for Federal Contract Compliance, U.S. Department of Labor, within 10 working days following award of any construction subcontract in excess of \$10,000 at any tier for construction work under the contract resulting from this solicitation. The notification shall list the --

- (1) Name, address, and telephone number of the subcontractor;
- (2) Employer's identification number of the subcontractor;
- (3) Estimated dollar amount of the subcontract;
- (4) Estimated starting and completion dates of the subcontract; and
- (5) Geographical area in which the subcontract is to be performed.

(e) As used in this Notice, and in any contract resulting from this solicitation, the "covered area" is **Ventura County, California**

52.228-12 Prospective Subcontractor Requests for Bonds. (OCT 1995)

In accordance with Section 806(a)(3) of Pub. L. 102-190, as amended by Sections 2091 and 8105 of Pub. L. 103-355, upon the request of a prospective subcontractor or supplier offering to furnish labor or material for the performance of this contract for which a payment bond has been furnished to the Government pursuant to the Miller Act, the Contractor shall promptly provide a copy of such payment bond to the requester.

52.228-14 IRREVOCABLE LETTER OF CREDIT (DEC 1999)

(a) "Irrevocable letter of credit" (ILC), as used in this clause, means a written commitment by a federally insured financial institution to pay all or part of a stated amount of money, until the expiration date of the letter, upon presentation by the Government (the beneficiary) of a written demand therefor. Neither the financial institution nor the offeror/Contractor can revoke or condition the letter of credit.

(b) If the offeror intends to use an ILC in lieu of a bid bond, or to secure other types of bonds such as performance and payment bonds, the letter of credit and letter of confirmation formats in paragraphs (e) and (f) of this clause shall be used.

(c) The letter of credit shall be irrevocable, shall require presentation of no document other than a written demand and the ILC (including confirming letter, if any), shall be issued/confirmed by an acceptable federally insured financial institution as provided in paragraph (d) of this clause, and--

(1) If used as a bid guarantee, the ILC shall expire no earlier than 60 days after the close of the bid acceptance period;

(2) If used as an alternative to corporate or individual sureties as security for a performance or payment bond, the offeror/Contractor may submit an ILC with an initial expiration date estimated to cover the entire period for which financial security is required or may submit an ILC with an initial expiration date that is a minimum period of one year from the date of issuance. The ILC shall provide that, unless the issuer provides the beneficiary written notice of non-renewal at least 60 days in advance of the current expiration date, the ILC is automatically extended without amendment for one year from the expiration date, or any future expiration date, until the period of required coverage is completed and the Contracting Officer provides the financial institution with a written statement waiving the right to payment. The period of required coverage shall be:

(i) For contracts subject to the Miller Act, the later of--

(A) One year following the expected date of final payment;

(B) For performance bonds only, until completion of any warranty period; or

(C) For payment bonds only, until resolution of all claims filed against the payment bond during the one-year period following final payment.

(ii) For contracts not subject to the Miller Act, the later of--

(A) 90 days following final payment; or

(B) For performance bonds only, until completion of any warranty period.

(d) Only federally insured financial institutions rated investment grade or higher shall issue or confirm the ILC. The offeror/Contractor shall provide the Contracting Officer a credit rating that indicates the financial institution has the required rating(s) as of the date of issuance of the ILC. Unless the financial institution issuing the ILC had letter of credit business of less than \$25 million in the past year, ILCs over \$5 million must be confirmed by another acceptable financial institution that had letter of credit business of less than \$25 million in the past year.

(e) The following format shall be used by the issuing financial institution to create an ILC:

[Issuing Financial Institution's Letterhead or Name and Address]

Issue Date _____

IRREVOCABLE LETTER OF CREDIT NO. _____

Account party's name _____

Account party's address _____

For Solicitation No. _____(for reference only)

TO: [U.S. Government agency]

[U.S. Government agency's address]

1. We hereby establish this irrevocable and transferable Letter of Credit in your favor for one or more drawings up to United States \$ _____. This Letter of Credit is payable at [issuing financial institution's and, if any, confirming financial institution's] office at [issuing financial institution's address and, if any, confirming financial institution's address] and expires with our close of business on _____, or any automatically extended expiration date.

2. We hereby undertake to honor your or the transferee's sight draft(s) drawn on the issuing or, if any, the confirming financial institution, for all or any part of this credit if presented with this Letter of Credit and confirmation, if any, at the office specified in paragraph 1 of this Letter of Credit on or before the expiration date or any automatically extended expiration date.

3. [This paragraph is omitted if used as a bid guarantee, and subsequent paragraphs are renumbered.] It is a condition of this Letter of Credit that it is deemed to be automatically extended without amendment for one year from the expiration date hereof, or any future expiration date, unless at least 60 days prior to any expiration date, we notify you or the transferee by registered mail, or other receipted means of delivery, that we elect not to consider this Letter of Credit renewed for any such additional period. At the time we notify you, we also agree to notify the account party (and confirming financial institution, if any) by the same means of delivery.

4. This Letter of Credit is transferable. Transfers and assignments of proceeds are to be effected without charge to either the beneficiary or the transferee/assignee of proceeds. Such transfer or assignment shall be only at the written direction of the Government (the beneficiary) in a form satisfactory to the issuing financial institution and the confirming financial institution, if any.

5. This Letter of Credit is subject to the Uniform Customs and Practice (UCP) for Documentary Credits, 1993 Revision, International Chamber of Commerce Publication No. 500, and to the extent not inconsistent therewith, to the laws of _____ [state of confirming financial institution, if any, otherwise state of issuing financial institution].

6. If this credit expires during an interruption of business of this financial institution as described in Article 17 of the UCP, the financial institution specifically agrees to effect

payment if this credit is drawn against within 30 days after the resumption of our business.

Sincerely,

[Issuing financial institution]

(f) The following format shall be used by the financial institution to confirm an ILC:

[Confirming Financial Institution's Letterhead or Name and Address]

(Date) _____

Our Letter of Credit Advice Number _____

Beneficiary: _____ [U.S. Government agency]

Issuing Financial Institution: _____

Issuing Financial Institution's LC No.: _____

Gentlemen:

1. We hereby confirm the above indicated Letter of Credit, the original of which is attached, issued by _____ [name of issuing financial institution] for drawings of up to United States dollars _____/U.S. \$_____ and expiring with our close of business on _____ [the expiration date], or any automatically extended expiration date.

2. Draft(s) drawn under the Letter of Credit and this Confirmation are payable at our office located at _____.

3. We hereby undertake to honor sight draft(s) drawn under and presented with the Letter of Credit and this Confirmation at our offices as specified herein.

4. [This paragraph is omitted if used as a bid guarantee, and subsequent paragraphs are renumbered.] It is a condition of this confirmation that it be deemed automatically extended without amendment for one year from the expiration date hereof, or any automatically extended expiration date, unless:

(a) At least 60 days prior to any such expiration date, we shall notify the Contracting Officer, or the transferee and the issuing financial institution, by registered mail or other receipted means of delivery, that we elect not to consider this confirmation extended for

any such additional period; or

(b) The issuing financial institution shall have exercised its right to notify you or the transferee, the account party, and ourselves, of its election not to extend the expiration date of the Letter of Credit.

5. This confirmation is subject to the Uniform Customs and Practice (UCP) for Documentary Credits, 1993 Revision, International Chamber of Commerce Publication No. 500, and to the extent not inconsistent therewith, to the laws of _____ [state of confirming financial institution].

6. If this confirmation expires during an interruption of business of this financial institution as described in Article 17 of the UCP, we specifically agree to effect payment if this credit is drawn against within 30 days after the resumption of our business.

Sincerely,

[Confirming financial institution]

(g) The following format shall be used by the Contracting Officer for a sight draft to draw on the Letter of Credit:

SIGHT DRAFT

[City, State]

(Date) _____

[Name and address of financial institution]

Pay to the order of _____ [Beneficiary Agency] _____ the sum of United States \$_____. This draft is drawn under Irrevocable Letter of Credit No. _____.

[Beneficiary Agency]

By: _____

(End of clause)

52.228-15 Performance and Payment Bonds--Construction (JUL 2000)-

(a) Definitions. As used in this clause--

Original contract price means the award price of the contract; or, for requirements contracts, the price payable for the estimated total quantity; or, for indefinite-quantity contracts, the price payable for the specified minimum quantity. Original contract price does not include the price of any options, except those options exercised at the time of contract award.

(b) Amount of required bonds. Unless the resulting contract price is \$100,000 or less, the successful offeror shall furnish performance and payment bonds to the Contracting Officer as follows:

(1) Performance bonds (Standard Form 25). The penal amount of performance bonds at the time of contract award shall be 100 percent of the original contract price.

(2) Payment Bonds (Standard Form 25-A). The penal amount of payment bonds at the time of contract award shall be 100 percent of the original contract price.

(3) Additional bond protection. (i) The Government may require additional performance and payment bond protection if the contract price is increased. The increase in protection generally will equal 100 percent of the increase in contract price.

(ii) The Government may secure the additional protection by directing the Contractor to increase the penal amount of the existing bond or to obtain an additional bond.

(c) Furnishing executed bonds. The Contractor shall furnish all executed bonds, including any necessary reinsurance agreements, to the Contracting Officer, within the time period specified in the Bid Guarantee provision of the solicitation, or otherwise specified by the Contracting Officer, but in any event, before starting work.

(d) Surety or other security for bonds. The bonds shall be in the form of firm commitment, supported by corporate sureties whose names appear on the list contained in Treasury Department Circular 570, individual sureties, or by other acceptable security such as postal money order, certified check, cashier's check, irrevocable letter of credit, or, in accordance with Treasury Department regulations, certain bonds or notes of the United States. Treasury Circular 570 is published in the Federal Register or may be obtained from the U.S. Department of Treasury, Financial Management Service, Surety Bond Branch, 401 14th Street, NW, 2nd Floor, West Wing, Washington, DC 20227.

(e) Notice of subcontractor waiver of protection (40 U.S.C. 270b(c)). Any waiver of the right to sue on the payment bond is void unless it is in writing, signed by the person whose right is waived, and executed after such person has first furnished labor or material for use in the performance of the contract.

(End of clause)

EQUIPMENT OWNERSHIP AND OPERATING EXPENSE SCHEDULE (MAR 1995)
EFARS 52-231-5000

(a) Allowable costs for construction and marine plant and equipment in sound workable condition owned or controlled and furnished by a contractor or subcontractor at any tier shall be based on actual cost data for each piece of equipment or groups of similar serial and series for which the Government can determine both ownership and operating costs from the contractor's accounting records. When both ownership and operating costs cannot be determined for any piece of equipment or groups of similar serial or series equipment from the contractor's accounting records, costs for that equipment shall be based upon the applicable provisions of EP 1110-1-8, "Construction Equipment Ownership and Operating Expense Schedule," Region VII. Working conditions shall be considered to be average for determining equipment rates using the formula provided in the schedule. For forward pricing, the schedule in effect at the time of negotiations shall apply. For retrospective pricing, the schedule in effect at the time the work was performed shall apply.

(b) Equipment rental costs are allowable, subject to the provisions of FAR 31.105(d)(ii) and FAR 31.205-36 substantiated by certified copies of paid invoices. Rates for equipment rented from an organization under common control, lease-purchase or sale-leaseback arrangements will be determined using the schedule except that rental costs leased from an organization under common control that has an established practice of leasing the same or similar equipment to unaffiliated lessees are allowable. Costs for major repairs and overhaul are unallowable.

(c) When actual equipment costs are proposed and the total amount of the pricing action is over \$25,000, cost or pricing data shall be submitted on Standard Form 1411, "Contract Pricing Proposal Cover Sheet." By submitting cost or pricing data, the contractor grants to the contracting officer or an authorizing representative the right to examine those books, records, documents and other supporting data that will permit evaluation of the proposed equipment costs. After price agreement the contractor shall certify that the equipment costs of pricing data submitted are accurate, complete and current.

(End of clause)

52.232-33 PAYMENT BY ELECTRONIC FUNDS TRANSFER—CENTRAL
CONTRACTOR REGISTRATION (MAY 1999)

(a) Method of payment. (1) All payments by the Government under this contract shall be made by electronic funds transfer (EFT), except as provided in paragraph (a)(2) of this clause. As used in this clause, the term "EFT" refers to the funds transfer and may also include the payment information transfer.

(2) In the event the Government is unable to release one or more payments by EFT, the Contractor agrees to either--

(i) Accept payment by check or some other mutually agreeable method of payment; or

(ii) Request the Government to extend the payment due date until such time as the Government can make payment by EFT (but see paragraph (d) of this clause).

(b) Contractor's EFT information. The Government shall make payment to the Contractor using the EFT information contained in the Central Contractor Registration (CCR) database. In the event that the EFT information changes, the Contractor shall be responsible for providing the updated information to the CCR database.

(c) Mechanisms for EFT payment. The Government may make payment by EFT through either the Automated Clearing House (ACH) network, subject to the rules of the National Automated Clearing House Association, or the Fedwire Transfer System. The rules governing Federal payments through the ACH are contained in 31 CFR part 210.

(d) Suspension of payment. If the Contractor's EFT information in the CCR database is incorrect, then the Government need not make payment to the Contractor under this contract until correct EFT information is entered into the CCR database; and any invoice or contract financing request shall be deemed not to be a proper invoice for the purpose of prompt payment under this contract. The prompt payment terms of the contract regarding notice of an improper invoice and delays in accrual of interest penalties apply.

(e) Contractor EFT arrangements. If the Contractor has identified multiple payment receiving points (i.e., more than one remittance address and/or EFT information set) in the CCR database, and the Contractor has not notified the Government of the payment receiving point applicable to this contract, the Government shall make payment to the first payment receiving point (EFT information set or remittance address as applicable) listed in the CCR database.

(f) Liability for uncompleted or erroneous transfers. (1) If an uncompleted or erroneous transfer occurs because the Government used the Contractor's EFT information incorrectly, the Government remains responsible for--

(i) Making a correct payment;

(ii) Paying any prompt payment penalty due; and

(iii) Recovering any erroneously directed funds.

(2) If an uncompleted or erroneous transfer occurs because the Contractor's EFT information was incorrect, or was revised within 30 days of Government release of the EFT payment transaction instruction to the Federal Reserve System, and--

(i) If the funds are no longer under the control of the payment office, the Government is deemed to have made payment and the Contractor is responsible for recovery of any erroneously directed funds; or

(ii) If the funds remain under the control of the payment office, the Government shall not make payment, and the provisions of paragraph (d) of this clause shall apply.

(g) EFT and prompt payment. A payment shall be deemed to have been made in a timely manner in accordance with the prompt payment terms of this contract if, in the EFT payment transaction instruction released to the Federal Reserve System, the date specified for settlement of the payment is on or before the prompt payment due date, provided the specified payment date is a valid date under the rules of the Federal Reserve System.

(h) EFT and assignment of claims. If the Contractor assigns the proceeds of this contract as provided for in the assignment of claims terms of this contract, the Contractor shall require as a condition of any such assignment, that the assignee shall register in the CCR database and shall be paid by EFT in accordance with the terms of this clause. In all respects, the requirements of this clause shall apply to the assignee as if it were the Contractor. EFT information that shows the ultimate recipient of the transfer to be other than the Contractor, in the absence of a proper assignment of claims acceptable to the Government, is incorrect EFT information within the meaning of paragraph (d) of this clause.

(i) Liability for change of EFT information by financial agent. The Government is not liable for errors resulting from changes to EFT information made by the Contractor's financial agent.

(j) Payment information. The payment or disbursing office shall forward to the Contractor available payment information that is suitable for transmission as of the date of release of the EFT instruction to the Federal Reserve System. The Government may request the Contractor to designate a desired format and method(s) for delivery of payment information from a list of formats and methods the payment office is capable of executing. However, the Government does not guarantee that any particular format or method of delivery is available at any particular payment office and retains the latitude to use the format and delivery method most convenient to the Government. If the Government makes payment by check in accordance with paragraph (a) of this clause, the Government shall mail the payment information to the remittance address contained in the CCR database.

(End of Clause)

52.232-4001 CONTINUING CONTRACTS (ALTERNATE) (MAR 1995) EFARS 52-232-5002

(a) Funds are not available at the inception of this contract to cover the entire contract price. The sum of \$1,000,000.00 has been reserved for this contract and is available for payment to the contractor during the current fiscal year. It is expected that Congress will make appropriations for future fiscal years from which additional funds, together with funds provided by one or more non-federal project sponsors will be reserved for this contract. The liability of the United States for payment beyond the funds reserved for this contract is contingent on the reservation of additional funds.

(b) Failure to make payment in excess of the amount currently reserved, or that may be reserved from time to time, shall not be considered a breach of this contract, and shall not entitle the contractor to a price adjustment under the terms of this contract except as specifically provided in paragraphs (e) and (h) below.

(c) The Government may at any time reserve additional funds for payments under the contract if there are funds available for such purpose. The contracting officer will promptly notify the contractor of any additional funds reserved for the contract by issuing an administrative modification to the contract.

(d) If earnings will be such that funds reserved for the contract will be exhausted before the end of any fiscal year, the contractor shall give written notice to the contracting officer of the estimated date of exhaustion and of additional funds which will be needed to meet payments due or to become due under this contract during that fiscal year. This notice shall be given not less than 45 nor more than 60 days prior to the estimated date of exhaustion.

(e) No payments will be made after exhaustion of funds except to the extent that additional funds are reserved for the contract. If and when sufficient additional funds are reserved, the contractor shall be entitled to simple interest on any payment that the contracting officer determines was actually earned under the terms of this contract and would have been made except for exhaustion of funds. Interest shall be computed from the time such payment would otherwise have been made until actually or constructively made, and shall be at the rate established by the Secretary of the Treasury pursuant to Public Law 92-41, 85 Stat 97, as in effect on the first day of the delay in such payment.

(f) Any suspension, delay, or interruption of work arising from exhaustion or anticipated exhaustion of funds shall not constitute a breach of this contract and shall not entitle the contractor to any price adjustment under a "Suspension of Work" or similar clause or in any other manner under this contract.

(g) An equitable adjustment in performance time shall be made for any increase in the time required for performance of any part of the work arising from exhaustion of funds or the reasonable anticipation of exhaustion of funds.

(h) If, upon the expiration of sixty (60) days after the beginning of the fiscal year following an exhaustion of funds, the Government has failed to reserve sufficient additional funds to cover payments otherwise due, the contractor, by written notice delivered to the contracting officer at any time before such additional funds are reserved, may elect to treat his right to proceed with the work as having been terminated. Such a termination shall be at no cost to the Government, except that, to the extent that additional funds to make payment therefore are allocated to this contract, it may be treated as a termination for the convenience of the Government.

(i) If at any time it becomes apparent that the funds reserved for any fiscal year are in excess of the funds required to meet all payments due or to become due the contractor because of work performed and to be performed under this contract during the fiscal year, the Government reserves the right, after notice to the contractor, to reduce said reservation by the amount of such excess.

(j) The term "Reservation" means monies that have been set aside and made available for payments under this contract.

(End of clause)

52.236-4 PHYSICAL DATA (APR 1984)

Data and information furnished or referred to below is for the Contractor's information. The Government shall not be responsible for any interpretation of or conclusion drawn from the data or information by the Contractor.

- (a) The indications of physical conditions on the drawings and in the specifications are the result of site investigations by visual examinations, test borings and weather conditions data.
- (b) Weather conditions. The Contractor shall satisfy himself as to the hazards likely to arise from weather conditions.
- (c) Transportation facilities . The contractor shall make his own investigation of the conditions of existing public and private roads and clearances, restrictions, bridge load limits and other limitations affecting transportation and ingress and egress at the job site. The unavailability transportation facilities or limitations thereof shall not become a basis for claims against the Government or extensions of time for completion of the work.
- (d) N/A

52.236-16 QUANTITY SURVEYS, ALTERNATE I (APR 1984)

- (a) Quantity surveys shall be conducted, and the data derived from these surveys shall be used in computing the quantities of work performed and the actual construction completed and in place.
- (b) The Contractor shall conduct the original and final surveys and surveys for any periods for which progress payments are requested. All these surveys shall be conducted under the direction of a representative of the Contracting Officer, unless the Contracting Officer waives this requirement in a specific instance. The Government shall make such computations as are necessary to determine the quantities of work performed of finally in place. The Contractor shall make the computations based on the surveys for any periods for which progress payments are requested.
- (c) Promptly upon completing a survey, the Contractor shall furnish the originals of all field notes and all other records relating to the survey or to the layout of the work to the Contracting Officer, who shall use them as necessary to determine the amount of progress payments. The Contractor shall retain copies of all such material furnished to the Contracting Officer.

52.236-21 SPECIFICATIONS AND DRAWINGS FOR CONSTRUCTION (FEB 1997)

- (a) The Contractor shall keep on the work site a copy of the drawings and specifications and shall at all times give the Contracting Officer access thereto. Anything mentioned in the specifications and not shown on the drawings, or shown on the drawings and not mentioned in the specifications, shall be of like effect as if shown or mentioned in both. In case of difference between drawings and specifications, the specifications shall

govern. In case of discrepancy in the figures, in the drawings, or in the specifications, the matter shall be promptly submitted to the Contracting Officer, who shall promptly make a determination in writing. Any adjustment by the Contractor without such a determination shall be at its own risk and expense. The Contracting Officer shall furnish from time to time such detailed drawings and other information as considered necessary, unless otherwise provided.

(b) Wherever in the specifications or upon the drawings the words "directed", "required", "ordered", "designated", "prescribed", or words of like import are used, it shall be understood that the "direction", "requirement", "order", "designation", or "prescription", of the Contracting Officer is intended and similarly the words "approved", "acceptable", "satisfactory", or words of like import shall mean "approved by," or "acceptable to", or "satisfactory to" the Contracting Officer, unless otherwise expressly stated.

(c) Where "as shown," as indicated", "as detailed", or words of similar import are used, it shall be understood that the reference is made to the drawings accompanying this contract unless stated otherwise. The word "provided" as used herein shall be understood to mean "provide complete in place," that is "furnished and installed".

(d) Shop drawings means drawings, submitted to the Government by the Contractor, subcontractor, or any lower tier subcontractor pursuant to a construction contract, showing in detail (1) the proposed fabrication and assembly of structural elements, and (2) the installation (i.e., fit, and attachment details) of materials or equipment. It includes drawings, diagrams, layouts, schematics, descriptive literature, illustrations, schedules, performance and test data, and similar materials furnished by the contractor to explain in detail specific portions of the work required by the contract. The Government may duplicate, use, and disclose in any manner and for any purpose shop drawings delivered under this contract.

(e) If this contract requires shop drawings, the Contractor shall coordinate all such drawings, and review them for accuracy, completeness, and compliance with contract requirements and shall indicate its approval thereon as evidence of such coordination and review. Shop drawings submitted to the Contracting Officer without evidence of the Contractor's approval may be returned for resubmission. The Contracting Officer will indicate an approval or disapproval of the shop drawings and if not approved as submitted shall indicate the Government's reasons therefor. Any work done before such approval shall be at the Contractor's risk. Approval by the Contracting Officer shall not relieve the Contractor from responsibility for any errors or omissions in such drawings, nor from responsibility for complying with the requirements of this contract, except with respect to variations described and approved in accordance with (f) below.

(f) If shop drawings show variations from the contract requirements, the Contractor shall describe such variations in writing, separate from the drawings, at the time of submission. If the Contracting Officer approves any such variation, the Contracting Officer shall issue an appropriate contract modification, except that, if the variation is minor or does not involve a change in price or in time of performance, a modification need not be issued.

(g) The Contractor shall submit to the Contracting Officer for approval four copies (unless otherwise indicated) of all shop drawings as called for under the various headings of these specifications. Three sets (unless otherwise indicated) of all shop drawings, will be retained by the Contracting Officer and one set will be returned to the Contractor.

252.236-7001 CONTRACT DRAWINGS, MAPS, AND SPECIFICATIONS (AUG 2000)

(a) The Government will provide to the Contractor, without charge, one set of contract drawings and specifications, except publications incorporated into the technical provisions by reference, in electronic or paper media as chosen by the Contracting Officer.

(b) The Contractor shall--

- (1) Check all drawings furnished immediately upon receipt;
- (2) Compare all drawings and verify the figures before laying out the work;
- (3) Promptly notify the Contracting Officer of any discrepancies;
- (4) Be responsible for any errors that might have been avoided by complying with this paragraph (b); and
- (5) Reproduce and print contract drawings and specifications as needed.

(c) In general--

- (1) Large-scale drawings shall govern small-scale drawings; and
- (2) The Contractor shall follow figures marked on drawings in preference to scale measurements.

(d) Omissions from the drawings or specifications or the misdescription of details of work that are manifestly necessary to carry out the intent of the drawings and specifications, or that are customarily performed, shall not relieve the Contractor from performing such omitted or misdescribed details of the work. The Contractor shall perform such details as if fully and correctly set forth and described in the drawings and specifications.

(e) The work shall conform to the specifications and the contract drawings identified on the following index of drawings:

Title	File	Drawing No.
-------	------	-------------

See Drawing List
(End of clause)

252.247-7023 Transportation of Supplies by Sea (MAR 2000)

(a) Definitions. As used in this clause --

(1) "Components" means articles, materials, and supplies incorporated directly into end products at any level of manufacture, fabrication, or assembly by the Contractor or any subcontractor.

(2) "Department of Defense" (DoD) means the Army, Navy, Air Force, Marine Corps, and defense agencies.

(3) "Foreign flag vessel" means any vessel that is not a U.S.-flag vessel.

(4) "Ocean transportation" means any transportation aboard a ship, vessel, boat, barge, or ferry through international waters.

(5) "Subcontractor" means a supplier, materialman, distributor, or vendor at any level below the prime contractor whose contractual obligation to perform results from, or is conditioned upon, award of the prime contract and who is performing any part of the work or other requirement of the prime contract.

(6) "Supplies" means all property, except land and interests in land, that is clearly identifiable for eventual use by or owned by the DoD at the time of transportation by sea.

(i) An item is clearly identifiable for eventual use by the DoD if, for example, the contract documentation contains a reference to a DoD contract number or a military destination.

(ii) "Supplies" includes (but is not limited to) public works; buildings and facilities; ships; floating equipment and vessels of every character, type, and description, with parts, subassemblies, accessories, and equipment; machine tools; material; equipment; stores of all kinds; end items; construction materials; and components of the foregoing.

(7) "U.S.-flag vessel" means a vessel of the United States or belonging to the United States, including any vessel registered or having national status under the laws of the United States.

(b)(1) The Contractor shall use U.S.-flag vessels when transporting any supplies by sea under this contract.

(2) A subcontractor transporting supplies by sea under this contract shall use U.S.-flag vessels if--

(i) This contract is a construction contract; or

(ii) The supplies being transported are--

(A) Noncommercial items; or

(B) Commercial items that--

(1) The Contractor is reselling or distributing to the Government without adding value (generally, the Contractor does not add value to items that it contracts for f.o.b. destination shipment);

(2) Are shipped in direct support of U.S. military contingency operations, exercises, or forces deployed in humanitarian or peacekeeping operations; or

(3) Are commissary or exchange cargoes transported outside of the Defense Transportation System in accordance with 10 U.S.C. 2643.

(c) The Contractor and its subcontractors may request that the Contracting Officer authorize shipment in foreign-flag vessels, or designate available U.S.-flag vessels, if the Contractor or a subcontractor believes that --

(1) U.S.-flag vessels are not available for timely shipment;

(2) The freight charges are inordinately excessive or unreasonable; or

(3) Freight charges are higher than charges to private persons for transportation of like goods.

(d) The Contractor must submit any request for use of other than U.S.-flag vessels in writing to the Contracting Officer at least 45 days prior to the sailing date necessary to meet its delivery schedules. The Contracting Officer will process requests submitted after such date(s) as expeditiously as possible, but the Contracting Officer's failure to grant approvals to meet the shipper's sailing date will not of itself constitute a compensable delay under this or any other clause of this contract. Requests shall contain at a minimum --

(1) Type, weight, and cube of cargo;

(2) Required shipping date;

(3) Special handling and discharge requirements;

(4) Loading and discharge points;

(5) Name of shipper and consignee;

(6) Prime contract number; and

(7) A documented description of efforts made to secure U.S.-flag vessels, including points of contact (with names and telephone numbers) with at least two U.S.-flag carriers contacted. Copies of telephone notes, telegraphic and facsimile message or letters will be sufficient for this purpose.

(e) The Contractor shall, within 30 days after each shipment covered by this clause, provide the Contracting Officer and the Division of National Cargo, Office of Market Development, Maritime Administration, U.S. Department of Transportation, Washington, DC 20590, one copy of the rated on board vessel operating carrier's ocean bill of lading, which shall contain the following information --

(1) Prime contract number;

(2) Name of vessel;

(3) Vessel flag of registry;

(4) Date of loading;

(5) Port of loading;

(6) Port of final discharge;

(7) Description of commodity;

(8) Gross weight in pounds and cubic feet if available;

(9) Total ocean freight in U.S. dollars; and

(10) Name of the steamship company.

(f) The Contractor agrees to provide with its final invoice under this contract a representation that to the best of its knowledge and belief --

(1) No ocean transportation was used in the performance of this contract;

(2) Ocean transportation was used and only U.S.-flag vessels were used for all ocean shipments under the contract;

(3) Ocean transportation was used, and the Contractor had the written consent of the Contracting Officer for all non-U.S.-flag ocean transportation; or

(4) Ocean transportation was used and some or all of the shipments were made on non-

U.S.-flag vessels without the written consent of the Contracting Officer. The Contractor shall describe these shipments in the following format:

ITEM DESCRIPTION	CONTRACT LINE ITEMS	QUANTITY
TOTAL		

(g) If the final invoice does not include the required representation, the Government will reject and return it to the Contractor as an improper invoice for the purposes of the Prompt Payment clause of this contract. In the event there has been unauthorized use of non-U.S.-flag vessels in the performance of this contract, the Contracting Officer is entitled to equitably adjust the contract, based on the unauthorized use.

(h) The Contractor shall include this clause, including this paragraph (h), in all subcontractors under this contract that--

(1) Exceed the simplified acquisition threshold in Part 2 of the Federal Acquisition Regulation; and

(2) Are for a type of supplies described in paragraph (b)(3) of this clause.

(End of clause)

SECTION 0850

RATE WAGES

General Decision Number CA010040

Superseded General Decision No. **CA000040**

State: California

Construction Type:

BUILDING

DREDGING

HEAVY

HIGHWAY

County(ies):

VENTURA

BUILDING CONSTRUCTION PROJECTS; DREDGING PROJECTS (does not include hopper dredge work); HEAVY CONSTRUCTION PROJECTS (does not include water well drilling); HIGHWAY CONSTRUCTION PROJECTS

Modification Number Publication Date

0	03/02/2001
1	03/09/2001
2	03/23/2001
3	04/13/2001
4	04/27/2001

COUNTY(ies):

VENTURA

ASBE0005B 01/01/2000

Rates

Fringes

INSULATOR/ASBESTOS WORKER

Includes the application of all insulating materials, protective coverings, coatings, and finishings to all types of mechanical systems

30.46

7.65

ASBE0208B 06/01/1996

Rates

Fringes

ASBESTOS REMOVAL WORKER/

HAZARDOUS MATERIAL HANDLER

Includes preparation, wetting, stripping, removal, scrapping, vacuuming, bagging and disposing of all insulation materials from mechanical systems, whether they contain asbestos or not

19.70

4.81

BOIL0092F 10/01/2000

Rates

Fringes

BOILERMAKER

30.06

9.81

TUBE WELDER

31.56

9.81

BRCA0004W 05/01/1997

Rates

Fringes

BRICKLAYER

24.06

5.23

MARBLE SETTER

26.31

5.23

MARBLE FINISHER

15.50

1.25

BRCA0018H 06/01/2000

	Rates	Fringes
TILE SETTER	25.74	5.82
TILE FINISHER	16.25	1.25

BRCA0018K 03/01/2000		
	Rates	Fringes
TERRAZZO WORKER	25.78	5.05
TERRAZZO FINISHER	19.83	5.05

CARP0002A 07/01/2000		
	Rates	Fringes
CARPENTERS:		
Carpenter, cabinet installer, insulation installer, floor worker and acoustical installer	26.75	6.38
Shingler	26.88	6.38
Roof loader of shingles	18.82	6.38
Saw filer	26.83	6.38
Table power saw operator	26.85	6.38
Pneumatic nailer or power stapler	27.00	6.38
Millwright	27.25	6.38
Pile driver; Derrick barge; Bridge or dock carpenter; Cable splicer; Heavy framer;		
Rockslinger	26.88	6.38
Head rockslinger	26.98	6.38
Rock barge or scow	26.78	6.38
Scaffold builder	21.00	6.38
FOOTNOTE:		
Work of forming in the construction of open cut sewers or storm drains, on operations in which horizontal lagging is used in conjunction with steel H-Beams driven or placed in pre-drilled holes, for that portion of a lagged trench against which concrete is poured, namely, as a substitute for back forms (which work is performed by piledrivers): \$0.13 per hour additional.		

CARP0002B 07/01/2000		
	Rates	Fringes
DIVERS:		
Diver, wet	470.08 per day	6.38
Diver, stand-by	235.04 per day	6.38
Diver tender	227.04 per day	6.38

CARP0002Q 07/01/1999		
	Rates	Fringes
DRYWALL INSTALLERS:		
Work on wood-framed apartment buildings under 4 stories	19.00	6.33
All other work	25.75	6.33
DRYWALL STOCKER/SCRAPPER	10.00	5.32

CARP0003H 07/01/1999		
	Rates	Fringes
MODULAR FURNITURE INSTALLER	13.08	3.98
LOW WALL MODULAR TECHNICIAN	17.80	3.98
FULL WALL TECHNICIAN	21.88	3.98

ELEC0011F 12/01/2000

	Rates	Fringes
COMMUNICATIONS AND SYSTEMS WORK:		
COMMUNICATIONS & SYSTEMS:		
Installer	20.23	3% + 4.00
Technician	22.03	3% + 4.00

SCOPE OF WORK:

Installation, testing, service and maintenance of systems utilizing the transmission and/or transference of voice, sound, vision and digital for commercial, educational, security and entertainment purposes for the following: TV monitoring and surveillance, background-foreground music, intercom and telephone interconnect, inventory control systems, microwave transmission, multi-media, multiplex, nurse call systems, radio page, school intercom and sound, burglar alarms, fire alarm (see last paragraph below) and low voltage master clock systems in commercial buildings.

Communication Systems that transmit or receive information and/or control systems that are intrinsic to the above listed systems; inclusion or exclusion of terminations and testings of conductors determined by their function; excluding all other data systems or multiple systems which include control function or power supply; excluding installation of raceway systems, conduit systems, line voltage work, and energy management systems.

Fire alarm work shall be performed at the current inside wireman total cost package.

ELEC0952A 04/01/2000

	Rates	Fringes
ELECTRICIANS:		
Area within 32 road miles from the nearest basing point:		
Electrician	29.10	3%+8.35
Cable splicer	32.01	3%+8.35
Remainder of Ventura County:		
Electrician	34.10	3%+8.35
Cable splicer	37.01	3%+8.35

FOOTNOTE:

Basing points: the main Post Office in the cities of Camarillo, Oak View, Oxnard, Santa Paula and Ventura.

ELEC1245A 06/01/2000

	Rates	Fringes
LINE CONSTRUCTION AND OUTSIDE UTILITY TRANSMISSION WORK:		
Line worker; Cable splicer	31.26	4.5% + 7.35
Powder worker	29.70	4.5% + 7.46
Ground person	20.32	4.5% + 7.58
Equipment specialist (operates crawler tractors, commercial motor vehicles, backhoes, trenchers, cranes (50 tons and below), and overhead and underground distribution line equipment)	26.57	4.5% + 7.07
Line worker, welding	32.82	4.5% + 7.53

SCOPE OF WORK:

All outside work on electrical transmission lines, switchyards

and substations, and outside work in electrical utility distribution systems owned, maintained and operated by electrical utility companies, municipalities, or governmental agencies.

ELEV0018A 09/15/2000

	Rates	Fringes
ELEVATOR MECHANIC	32.805	7.195

FOOTNOTE:

Vacation Pay: 8% with 5 or more years of service, 6% for 6 months to 5 years service. Paid Holidays: New Years Day, Memorial Day, Independence Day, Labor Day, Thanksgiving Day and Friday after, and Christmas Day.

ENGI0012C 07/01/2000

	Rates	Fringes
POWER EQUIPMENT OPERATORS:		

GROUP 1	26.25	9.85
GROUP 2	27.03	9.85
GROUP 3	27.32	9.85
GROUP 4	28.21	9.85
GROUP 5	28.43	9.85
GROUP 6	29.53	9.85
GROUP 7	28.54	9.85
GROUP 8	29.64	9.85
GROUP 9	28.66	9.85
GROUP 10	29.76	9.85
GROUP 11	28.83	9.85
GROUP 12	28.93	9.85
GROUP 13	28.96	9.85
GROUP 14	29.04	9.85
GROUP 15	29.16	9.85
GROUP 16	29.33	9.85
GROUP 17	29.43	9.85
GROUP 18	29.54	9.85
GROUP 19	29.66	9.85
GROUP 20	29.83	9.85
GROUP 21	30.93	9.85
GROUP 22	30.04	9.85
GROUP 23	30.16	9.85
GROUP 24	30.83	9.85

CRANES, PILEDRIVING & HOISTING EQUIPMENT:

GROUP 1	27.00	9.85
GROUP 2	28.78	9.85
GROUP 3	28.07	9.85
GROUP 4	28.21	9.85
GROUP 5	28.43	9.85
GROUP 6	28.54	9.85
GROUP 7	28.66	9.85
GROUP 8	28.83	9.85
GROUP 9	29.00	9.85
GROUP 10	30.00	9.85
GROUP 11	31.00	9.85
GROUP 12	32.00	9.85
GROUP 13	33.00	9.85

TUNNEL WORK:

GROUP 1	27.50	9.85
GROUP 2	28.28	9.85

GROUP 3	28.57	9.85
GROUP 4	28.71	9.85
GROUP 5	28.93	9.85
GROUP 6	29.04	9.85
GROUP 7	29.16	9.85

FOOTNOTES:

Workers required to suit up and work in a hazardous material environment: \$1.00 per hour additional.

Combination mixer and compressor operator on gunite work shall be classified as a concrete mobile mixer operator.

POWER EQUIPMENT OPERATORS CLASSIFICATIONS

GROUP 1: Barge, brake, compressor operator, Ditch Witch, with seat or similar type equipment, elevator operator - inside, engineer oiler, generator operator, generator, pump or compressor plant operator, pump operator, signal, switch

GROUP 2: Asphalt-rubber plant operator (nurse tank operator), concrete mixer operator - skip type, conveyor operator, fire person, hydrostatic pump operator, oiler crusher (asphalt or concrete plant), skiploader (wheel type up to 3/4 yd. without attachment), tar pot fire person, temporary heating plant operator, trenching machine oiler

GROUP 3: Asphalt-rubber blend operator, equipment greaser (rack), Ford Ferguson (with dragtype attachments), helicopter radio (ground), stationary pipe wrapping and cleaning machine operator

GROUP 4: Asphalt plant fire person, backhoe operator (mini-max or similar type), boring machine operator, box or mixer (asphalt or concrete), chip spreading machine operator, concrete cleaning decontamination machine operator, concrete pump operator (small portable), drilling machine operator, small auger types (Texoma super economatic or similar types - Hughes 100 or 200 or similar types - drilling depth of 30' maximum), equipment greaser (grease truck), guard rail post driver operator, highline cableway signal, hydra-hammer-aero stomper, power concrete curing machine operator, power concrete saw operator, power-driven jumbo form setter operator, power sweeper operator, roller operator (compacting), screed operator (asphalt or concrete), trenching machine operator (up to 6 ft.)

GROUP 5: Equipment greaser (grease truck/multi-shift)

GROUP 6: Asphalt plant engineer, batch plant operator, bit sharpener, concrete joint machine operator (canal and similar type), concrete planer operator, deck engine operator, derrick (oilfield type), drilling machine operator, bucket or auger types (Calweld 100 bucket or similar types - Watson 1000 auger or similar types - Texoma 330, 500 or 600 auger or similar types - drilling depth of 45' maximum), drilling machine operator (including water wells incidental to building, heavy or highway construction), hydrographic seeder machine operator (straw, pump or seed), Jackson track maintainer, or similar type, Kalamazoo switch tamper, or similar type, machine tool operator, Maginnis internal full slab vibrator, mechanical berm, curb or gutter (concrete or asphalt), mechanical finisher operator (concrete, Clary-Johnson-Bidwell or similar), pavement breaker operator (truck mounted), road oil mixing machine operator, roller operator (asphalt or finish), rubber-tired earth moving equipment (single engine, up to and including 25 yds. struck), self-propelled tar pipelining machine operator, skiploader operator (crawler and wheel type, over 3/4 yd. and up to and including 1-

1/2 yds.), slip form pump operator (power driven hydraulic lifting device for concrete forms), tractor operator - bulldozer, tamper-scraper (single engine, up to 100 h.p. flywheel and similar types, up to and including D-5 and similar types), tugger hoist operator (1 drum), ultra high pressure waterjet cutting tool system operator, vacuum blasting machine operator

GROUP 7: Asphalt or concrete spreading operator (tamping or finishing), asphalt paving machine operator (Barber Greene or similar type), asphalt-rubber distribution operator, backhoe operator (up to and including 3/4 yd.), small Ford, Case or similar, cast-in-place pipe laying machine operator, combination mixer and compressor operator (gunite work), compactor operator (self-propelled), concrete mixer operator (paving), crushing plant operator, drill doctor, drilling machine operator, bucket or auger types (Calweld 150 bucket or similar types - Watson 1500, 2000 2500 auger or similar types - Texoma 700, 800 auger or similar types - drilling depth of 60' maximum), elevating grader operator, grade checker, gradall operator, grouting machine operator, heavy-duty repair person, heavy equipment robotics operator, Kalamazoo balliste regulator or similar type, Kolman belt loader and similar type, Le Tourneau blob compactor or similar type, loader operator (Athey, Euclid, Sierra and similar types), pneumatic concrete placing machine operator (Hackley-Presswell or similar type), pumpcrete gun operator, rotary drill operator (excluding caisson type), rubber-tired earth-moving equipment operator (single engine, caterpillar, Euclid, Athey Wagon and similar types with any and all attachments over 25 yds. up to and including 50 cu. yds. struck), rubber-tired earth-moving equipment operator (multiple engine up to and including 25 yds. struck), rubber-tired scraper operator (self-loading paddle wheel type - John Deere, 1040 and similar single unit), self-propelled curb and gutter machine operator, skiploader operator (crawler and wheel type over 1-1/2 yds. up to and including 6-1/2 yds.), soil remediation plant operator, surface heaters and planer operator, tractor compressor drill combination operator, tractor operator (any type larger than D-5 - 100 flywheel h.p. and over, or similar - bulldozer, tamper, scraper and push tractor single engine), tractor operator (boom attachments), traveling pipe wrapping, cleaning and bending machine operator, trenching machine operator (over 6 ft. depth capacity, manufacturer's rating), ultra high pressure waterjet cutting tool system mechanic

GROUP 8: Heavy-duty repair person (multi-shift)

GROUP 9: Drilling machine operator, bucket or auger types (Calweld 200 B bucket or similar types - Watson 3000 or 5000 auger or similar types - Texoma 900 auger or similar types - drilling depth of 105' maximum), dual drum mixer, dynamic compactor LDC350 (or similar types), heavy-duty repair-welder combination, monorail locomotive operator (diesel, gas or electric), motor patrol - blade operator (single engine), multiple engine tractor operator (Euclid and similar type - except Quad 9 cat.), rubber-tired earth-moving equipment operator (single engine, over 50 yds. struck), rubber-tired earth-moving equipment operator (multiple engine, Euclid, caterpillar and similar over 25 yds. and up to 50 yds. struck), tower crane repair person, tractor loader operator (crawler and wheel type over 6-1/2 yds.), Woods mixer operator (and similar Pugmill

equipment)

GROUP 10: Heavy-duty repair-welder combination (multi-shift)

GROUP 11: Auto grader operator, automatic slip form operator, drilling machine operator, bucket or auger types (Calweld, auger 200 CA or similar types - Watson, auger 6000 or similar types - Hughes Super Duty, auger 200 or similar types - drilling depth of 175' maximum), hoe ram or similar with compressor, mass excavator operator, mechanical finishing machine operator, mobile form traveler operator, motor patrol operator (multi-engine), pipe mobile machine operator, rubber-tired earth-moving equipment operator (multiple engine, Euclid, Caterpillar and similar type, over 50 cu. yds. struck), rubber-tired self-loading scraper operator (paddle-wheel-auger type self-loading - two (2) or more units)

GROUP 12: Rubber-tired earth-moving equipment operator operating equipment with push-pull system (single engine, up to and including 25 yds. struck)

GROUP 13: Canal liner operator, canal trimmer operator, remote-control earth-moving equipment operator (operating a second piece of equipment: \$1.00 per hour additional), wheel excavator operator

GROUP 14: Rubber-tired earth-moving equipment operator, operating equipment with push-pull system (single engine, Caterpillar, Euclid, Athey Wagon and similar types with any and all attachments over 25 yds. and up to and including 50 yds. struck), rubber-tired earth-moving equipment operator, operating equipment with push-pull system (multiple engine - up to and including 25 yds. struck)

GROUP 15: Rubber-tired earth-moving equipment operator, operating equipment with push-pull system (single engine, over 50 yds. struck), rubber-tired earth-moving equipment operator, operating equipment with push-pull system (multiple engine, Euclid, Caterpillar and similar, over 25 yds. and up to 50 yds. struck)

GROUP 16: Rubber-tired earth-moving equipment operator, operating equipment with push-pull system (multiple engine, Euclid, Caterpillar and similar, over 50 cu. yds. struck), tandem tractor operator (operating crawler type tractors in tandem - Quad 9 and similar type)

GROUP 17: Rubber-tired earth-moving equipment operator, operating in tandem (scrapers, belly dumps and similar types in any combination, excluding compaction units - single engine, up to and including 25 yds. struck)

GROUP 18: Rotex concrete belt operator (or similar types), rubber-tired earth-moving equipment operator, operating in tandem (scrapers, belly dumps and similar types in any combination, excluding compaction units - single engine, Caterpillar, Euclid, Athey Wagon and similar types with any and all attachments over 25 yds. and up to and including 50 cu. yds. struck), rubber-tired earth-moving equipment operator, operating in tandem (scrapers, belly dumps and similar types in any combination, excluding compaction units - multiple engine, up to and including 25 yds. struck)

GROUP 19: Rubber-tired earth-moving equipment operator, operating in tandem (scrapers, belly dumps and similar types in any combination, excluding compaction units - single engine, over 50 yds. struck), rubber-tired earth-moving equipment operator,

operating in tandem (scrapers, belly dumps, and similar types in any combination, excluding compaction units - multiple engine, Euclid, Caterpillar and similar, over 25 yds. and up to 50 yds. struck)

GROUP 20: Rubber-tired earth-moving equipment operator, operating in tandem (scrapers, belly dumps and similar types in any combination, excluding compaction units - multiple engine, Euclid, Caterpillar and similar type, over 50 cu. yds. struck)

GROUP 21: Rubber-tired earth-moving equipment operator, operating equipment with the tandem push-pull system (single engine, up to and including 25 yds. struck)

GROUP 22: Rubber-tired earth-moving equipment operator, operating equipment with the tandem push-pull system (single engine, Caterpillar, Euclid, Athey Wagon and similar types with any and all attachments over 25 yds. and up to and including 50 yds. struck), rubber-tired earth-moving equipment operator, operating with the tandem push-pull system (multiple engine, up to and including 25 yds. struck)

GROUP 23: Rubber-tired earth-moving equipment operator, operating equipment with the tandem push-pull system (single engine, over 50 yds. struck), rubber-tired earth-moving equipment operator, operating equipment with the tandem push-pull system (multiple engine, Euclid, Caterpillar and similar, over 25 yds. and up to 50 yds. struck)

GROUP 24: Concrete pump operator - truck mounted, rubber-tired earth-moving equipment operator, operating equipment with the tandem push-pull system (multiple engine, Euclid, Caterpillar and similar type, over 50 cu. yds. struck)

CRANES, PILEDRIVING AND HOISTING EQUIPMENT CLASSIFICATIONS

GROUP 1: Engineer oiler; Fork lift operator (includes loed, lull or similar types)

GROUP 2: Truck crane oiler

GROUP 3: A-frame or winch truck operator; Ross carrier operator (jobsite)

GROUP 4: Bridge-type unloader and turntable operator; Helicopter hoist operator

GROUP 5: Stinger crane (Austin-Western or similar type); Tugger hoist operator (1 drum)

GROUP 6: Bridge crane operator; Cretor crane operator; Hoist operator (Chicago boom and similar type); Lift mobile operator; Lift slab machine operator (Vagtborg and similar types); Material hoist operator; Polar gantry crane operator; Shovel, backhoe, dragline, clamshell operator (over 3/4 yd. and up to 5 cu. yds. mrc); Tugger hoist operator

GROUP 7: Pedestal crane operator; Shovel, backhoe, dragline, clamshell operator (over 5 cu. yds. mrc); Tower crane repair; Tugger hoist operator (3 drum)

GROUP 8: Crane operator (up to and including 25 ton capacity); Crawler transporter operator; Derrick barge operator (up to and including 25 ton capacity); Hoist operator, stiff legs, Guy derrick or similar type (up to and including 25 ton capacity); Shovel, backhoe, dragline, clamshell operator (over 7 cu. yds. mrc)

GROUP 9: Crane operator (over 25 tons and up to and including 50 tons mrc); Derrick barge operator (over 25 tons up to and including 50 tons mrc); Highline cableway operator; Hoist operator, stiff legs, Guy derrick or similar type (over 25 tons

up to and including 50 tons mrc); K-crane operator; Polar crane operator

GROUP 10: Crane operator (over 50 tons and up to and including 100 tons mrc); Derrick barge operator (over 50 tons up to and including 100 tons mrc); Hoist operator, stiff legs, Guy derrick or similar type (over 50 tons up to and including 100 tons mrc), Mobile tower crane operator (over 50 tons, up to and including 100 tons M.R.C.); Tower crane operator and tower gantry

GROUP 11: Crane operator (over 100 tons and up to and including 200 tons mrc); Derrick barge operator (over 100 tons up to and including 200 tons mrc); Hoist operator, stiff legs, Guy derrick or similar type (over 100 tons up to and including 200 tons mrc); Mobile tower crane operator (over 100 tons up to and including 200 tons mrc)

GROUP 12: Crane operator (over 200 tons up to and including 300 tons mrc); Derrick barge operator (over 200 tons up to and including 300 tons mrc); Hoist operator, stiff legs, Guy derrick or similar type (over 200 tons, up to and including 300 tons mrc); Mobile tower crane operator (over 200 tons, up to and including 300 tons mrc)

GROUP 13: Crane operator (over 300 tons); Derrick barge operator (over 300 tons); Helicopter pilot; Hoist operator, stiff legs, Guy derrick or similar type (over 300 tons); Mobile tower crane operator (over 300 tons)

TUNNEL CLASSIFICATIONS

GROUP 1: Skiploader (wheel type up to 3/4 yd. without attachment)

GROUP 2: Power-driven jumbo form setter operator

GROUP 3: Dinkey locomotive or motorperson (up to and including 10 tons)

GROUP 4: Bit sharpener; Equipment greaser (grease truck); Slip form pump operator (power-driven hydraulic lifting device for concrete forms); Tugger hoist operator (1 drum); Tunnel locomotive operator (over 10 and up to and including 30 tons)

GROUP 5: Backhoe operator (up to and including 3/4 yd.); Small Ford, Case or similar; Drill doctor; Grouting machine operator; Heading shield operator; Heavy-duty repairperson; Loader operator (Athey, Euclid, Sierra and similar types); Mucking machine operator (1/4 yd., rubber-tired, rail or track type); Pneumatic concrete placing machine operator (Hackley-Presswell or similar type); Pneumatic heading shield (tunnel); Pumpcrete gun operator; Tractor compressor drill combination operator; Tugger hoist operator (2 drum); Tunnel locomotive operator (over 30 tons)

GROUP 6: Heavy-duty repair/welder combination

GROUP 7: Tunnel mole boring machine operator

ENGI0012D 08/01/1999		
	Rates	Fringes
POWER EQUIPMENT OPERATORS:		
DREDGING:		
Lever person	31.85	10.35
Dozer operator	28.38	10.35
Welder; Deckmate	28.27	10.35
Winch operator (stern winch on dredge)	27.72	10.35
Fire person - oiler; Leveehand;		
Deckhand; Barge person	27.18	10.35
Barge mate	27.79	10.35

* IRON0001S 07/01/2000		
	Rates	Fringes
IRONWORKERS:		
Fence erector	25.19	14.575
Ornamental, reinforcing and structural	26.08	14.575
FOOTNOTE:		
Work at Port Hueneme and Port Mugu: \$1.00 per hour additional.		

LABO0001B 09/01/2000		
	Rates	Fringes
BRICK TENDER	19.67	9.10
FORK LIFT OPERATOR	19.82	9.10

LABO0002H 07/01/2000		
	Rates	Fringes
LABORERS:		
GROUP 1	18.82	9.65
GROUP 2	19.27	9.65
GROUP 3	19.62	9.65
GROUP 4	20.92	9.65
GROUP 5	21.67	9.65
TUNNEL LABORERS:		
GROUP 1	21.73	9.65
GROUP 2	21.95	9.65
GROUP 3	22.21	9.65
GROUP 4	22.65	9.65
GUNITE LABORERS:		
GROUP 1	21.69	11.88
GROUP 2	20.74	11.88
GROUP 3	17.20	11.88
HOUSEMOVERS (ONLY WHERE HOUSEMOVING IS INCIDENTAL TO A CONSTRUCTION CONTRACT):		
Housemover	15.50	8.38
Yard maintenance person	15.25	8.38

FOOTNOTE:

GUNITE PREMIUM PAY:

Workers working from a Bosn'n's Chair or suspended from a rope or cable shall receive 40 cents per hour above the foregoing applicable classification rates.

Workers doing gunite and/or shotcrete work in a tunnel shall receive 35 cents per hour above the foregoing applicable classification rates, paid on a portal-to-portal basis.

Any work performed on, in or above any smoke stack, silo, storage elevator or similar type of structure, when such structure is in excess of 75'-0" above base level and which work must be performed in whole or in part more than 75'-0" above base level, that work performed above the 75'-0" level shall be compensated for at 35 cents per hour above the applicable classification wage rate.

LABORER CLASSIFICATIONS

GROUP 1: Cleaning and handling of panel forms; Concrete screeding for rough strike-off; Concrete, water curing; Demolition laborer, the cleaning of brick if performed by a worker performing any other phase of demolition work, and the cleaning of lumber; Fire watcher, limber, brush loader, piler and

debris handler; Flag person; Gas, oil and/or water pipeline laborer; Laborer, asphalt-rubber material loader; Laborer, general or construction; Laborer, general clean-up; Laborer, landscaping; Laborer, jetting; Laborer, temporary water and air lines; Material hose operator (walls, slabs, floors and decks); Plugging, filling of shee bolt holes; Dry packing of concrete; Railroad maintenance, repair track person and road beds; Streetcar and railroad construction track laborers; Rigging and signaling; Scaler; Slip form raiser; Slurry seal crew (mixer operator, applicator operator, squeegee person, shuttle person, top person), filling of cracks by any method on any surface; Tar and mortar; Tool crib or tool house laborer; Traffic control by any method; Window cleaner; Wire mesh pulling - all concrete pouring operations

GROUP 2: Asbestos abatement; Asphalt shoveler; Cement dumper (on 1 yd. or larger mixer and handling bulk cement); Cesspool digger and installer; Chucktender; Chute handler, pouring concrete, the handling of the chute from readymix trucks, such as walls, slabs, decks, floors, foundation, footings, curbs, gutters and sidewalks; Concrete curer, impervious membrane and form oiler; Cutting torch operator (demolition); Fine grader, highways and street paving, airport, runways and similar type heavy construction; Gas, oil and/or water pipeline wrapper - pot tender and form person; Guinea chaser; Headerboard person - asphalt; Laborer, packing rod steel and pans; Membrane vapor barrier installer; Power broom sweeper (small); Riprap stonepaver, placing stone or wet sacked concrete; Roto scraper and tiller; Sandblaster (pot tender); Septic tank digger and installer (lead); Tank scaler and cleaner; Tree climber, faller, chain saw operator, Pittsburgh chipper and similar type brush shredder; Underground laborer, including caisson bellower

GROUP 3: Buggymobile person; Concrete cutting torch; Concrete pile cutter; Driller, jackhammer, 2-1/2 ft. drill steel or longer; Dri-pak-it machine; Gas, oil and/or water pipeline wrapper, 6-in. pipe and over, by any method, inside and out; High scaler (including drilling of same); Hydro seeder and similar type; Impact wrench multi-plate; Kettle person, pot person and workers applying asphalt, lay-kold, creosote, lime caustic and similar type materials ("applying" means applying, dipping, brushing or handling of such materials for pipe wrapping and waterproofing); Operator of pneumatic, gas, electric tools, vibrating machine, pavement breaker, air blasting, come-alongs, and similar mechanical tools not separately classified herein; Pipelayer's backup person, coating, grouting, making of joints, sealing, caulking, diapering and including rubber gasket joints, pointing and any and all other services; Rock slinger; Rotary scarifier or multiple head concrete chipping scarifier; Steel headerboard and guideline setter; Tamper, Barko, Wacker and similar type; Trenching machine, hand-propelled

GROUP 4: Asphalt raker, lute person, ironer, asphalt dump person, and asphalt spreader boxes (all types); Concrete core cutter (walls, floors or ceilings), grinder or sander; Concrete saw person, cutting walls or flat work, scoring old or new concrete; Cribber, shorer, lagging, sheeting and trench bracing, hand-guided lagging hammer; Head rock slinger; Laborer, asphalt-rubber distributor boot person; Laser beam in connection with laborers' work; Oversize concrete vibrator operator, 70 lbs. and

over; Pipelayer performing all services in the laying and installation of pipe from the point of receiving pipe in the ditch until completion of operation, including any and all forms of tubular material, whether pipe, metallic or non-metallic, conduit and any other stationary type of tubular device used for the conveying of any substance or element, whether water, sewage, solid gas, air, or other product whatsoever and without regard to the nature of material from which the tubular material is fabricated; No-joint pipe and stripping of same; Prefabricated manhole installer; Sandblaster (nozzle person), water blasting, Porta Shot-Blast; Welding in connection with laborers' work
 GROUP 5: Blaster powder, all work of loading holes, placing and blasting of all powder and explosives of whatever type, regardless of method used for such loading and placing; Driller: All power drills, excluding jackhammer, whether core, diamond, wagon, track, multiple unit, and any and all other types of mechanical drills without regard to the form of motive power;
 Toxic waste removal

TUNNEL LABORER CLASSIFICATIONS

GROUP 1: Batch plant laborer; Bull gang mucker, track person; Changehouse person; Concrete crew, including rodder and spreader; Dump person; Dump person (outside); Swamper (brake person and switch person on tunnel work); Tunnel materials handling person
 GROUP 2: Chucktender, cabletender; Loading and unloading agitator cars; Nipper; Pot tender, using mastic or other materials (for example, but not by way of limitation, shotcrete, etc.); Vibrator person, jack hammer, pneumatic tools (except driller)
 GROUP 3: Blaster, driller, powder person; Chemical grout jet person; Cherry picker person; Grout gun person; Grout mixer person; Grout pump person; Jackleg miner; Jumbo person; Kemper and other pneumatic concrete placer operator; Miner, tunnel (hand or machine); Nozzle person; Operating of troweling and/or grouting machines; Powder person (primer house); Primer person; Sandblaster; Shotcrete person; Steel form raiser and setter; Timber person, retimber person, wood or steel; Tunnel Concrete finisher
 GROUP 4: Diamond driller; Sandblaster; Shaft and raise work

GUNITE LABORER CLASSIFICATIONS

GROUP 1: Nozzle person and rod person
 GROUP 2: Gun person
 GROUP 3: Rebound person

LABO0585A	08/02/2000	
	Rates	Fringes
PLASTERER TENDER:		
Plaster Tender	21.08	9.62
Plaster Clean up Laborer	18.53	9.62

LABO0882A	01/01/2000	
	Rates	Fringes
ASBESTOS REMOVAL LABORER	13.72	4.31
SCOPE OF WORK: includes site mobilization, initial site clean-up, site preparation, removal of asbestos-containing material and toxic waste (including lead abatement and any other toxic materials), encapsulation, enclosure and disposal of asbestos-containing materials and toxic waste (including lead abatement		

and any other toxic materials) by hand or with equipment or machinery; scaffolding, fabrication of temporary wooden barriers, and assembly of decontamination stations.

LABO1184A 08/01/2000

	Rates	Fringes
LABORERS - STRIPING:		
GROUP 1	19.60	7.76
GROUP 2	20.15	7.76
GROUP 3	21.97	7.76
GROUP 4	23.22	7.76

LABORERS - STRIPING CLASSIFICATIONS

GROUP 1: Protective coating, pavement sealing, including repair and filling of cracks by any method on any surface in parking lots, game courts and playgrounds; carstops; operation of all related machinery and equipment; equipment repair technician

GROUP 2: Traffic surface abrasive blaster; pot tender - removal of all traffic lines and markings by any method (sandblasting, waterblasting, grinding, etc.) and preparation of surface for coatings. Traffic control person: controlling and directing traffic through both conventional and moving lane closures; operation of all related machinery and equipment

GROUP 3: Traffic delineating device applicator: Layout and application of pavement markers, delineating signs, rumble and traffic bars, adhesives, guide markers, other traffic delineating devices including traffic control. This category includes all traffic related surface preparation (sandblasting, waterblasting, grinding) as part of the application process. Traffic protective delineating system installer: removes, relocates, installs, permanently affixed roadside and parking delineation barricades, fencing, cable anchor, guard rail, reference signs, monument markers; operation of all related machinery and equipment; power broom sweeper

GROUP 4: Striper: layout and application of traffic stripes and markings; hot thermo plastic; tape traffic stripes and markings, including traffic control; operation of all related machinery and equipment

PAIN0036B 08/01/2000

	Rates	Fringes
PAINTERS (including lead abatement):		
Work on service stations and and car washes; Small new commercial work (defined as construction up to and including 3 stories in height, such as small shopping centers, small stores, small office buildings and small food establishments); Small new industrial work (defined as light metal buildings, small warehouses, small storage facilities and tilt-up buildings); Repaint work (defined as repaint of		

any structure with the exception of work involving the aerospace industry, breweries, commercial recreational facilities, hotels which operate commercial establishments as part of hotel service, and sports facilities); Tenant improvement work (defined as tenant improvement work not included in conjunction with the construction of the building, and all repainting of tenant improvement projects

	17.80	5.52
All other work	22.09	5.52
All military bases:		
Iron & steel	22.29	5.52
High iron & steel (structural steel and components above 30 ft.)	23.29	5.52
Steeplejack	24.29	5.52

PAIN0036H 10/01/1999

	Rates	Fringes
DRYWALL FINISHERS:		
Work on wood frame structures	18.00	3.71
All other work	24.33	6.88

PAIN0636B 06/01/1999

	Rates	Fringes
GLAZIER	26.10	7.23

FOOTNOTES:

Work in a condor, from the third (3rd) floor and up: \$1.25 per hour additional.

Work on the outside of the building from a swing stage or any suspended contrivance, from the ground up: \$1.25 per hour additional.

PAIN1247B 01/01/2001

	Rates	Fringes
SOFT FLOOR LAYER	25.45	6.22

PLAS0200D 08/06/1997

	Rates	Fringes
PLASTERER	24.13	4.04

PLAS0500B 07/01/1999

	Rates	Fringes
CEMENT MASONS:		

Work on projects where the total permit value of the general and all subcontracts is \$12 million or less:

Cement Mason; curb and gutter machine; Clary and

similar type of screed operator (cement only); grinding machine (all types); Jackson vibratory, Texas screed and similar type screed operator; scoring machine operator	18.85	8.83
Cement mason (magnesite, magnesite - terrazzo and mastic composition, epoxy, urethanes and exotic coatings, Dex-O-Tex)	18.97	8.83
Cement mason, floating and troweling machine operator	19.10	8.83
All other work:		
Cement mason; curb and gutter machine operator; Clary and similar type of screed operator (cement only); grinding machine (all types); Jackson vibratory, Texas screed and similar type screed operator; scoring machine operator	20.81	10.83
Cement mason (magnesite, magnesite - terrazzo and mastic composition, epoxy, urethanes and exotic coatings, Dex-O-Tex)	20.93	10.83
Cement Mason - floating and troweling machine operator	21.06	10.83

FOOTNOTE:

Work on a swinging stage, bosun chair, or suspended scaffold, whether swinging or rigid, above or below ground: \$0.25 per hour additional.

PLUM0016A 07/01/2000		
	Rates	Fringes
PLUMBER & PIPEFITTER, REFRIGERATION & AIR CONDITIONING FITTER	25.78	11.87
SEWER AND STORM DRAIN WORK	17.46	10.76
SERVICE and REPAIR	24.93	11.32

PLUM0345A 07/01/2000		
	Rates	Fringes
LANDSCAPE & IRRIGATION FITTER	20.23	11.10

ROOF0036B 02/01/1999		
	Rates	Fringes
ROOFERS: Roofer	23.27	5.40
Preparer (duties limited to the following: Roof removal of any type of roofing or roofing material; or spudding, or sweeping; and/or clean-up; and/or preload in, or in preparing the roof for		

application of roofing, damp and/or
waterproofing materials 16.24 1.00
FOOTNOTE:

Pitch premium: Work on which employees are exposed to pitch fumes or required to handle pitch, pitch base or pitch impregnated products, or any material containing coal tar pitch, the entire roofing crew shall receive \$1.75 per hour "pitch premium" pay.

SFCA0669J 04/01/2001

	Rates	Fringes
DOES NOT INCLUDE PORT HUENEME, PORT MUGU, THE CITY OF SANTA PAULA, AND THAT PART OF VENTURA COUNTY WITHIN 25 MILES OF THE CITY LIMITS OF LOS ANGELES:		
SPRINKLER FITTER (FIRE)	28.35	6.00

SFCA0709A 09/01/2000

	Rates	Fringes
PORT HUENEME, PORT MUGU, THE CITY OF SANTA PAULA, AND THAT PART OF VENTURA COUNTY WITHIN 25 MILES OF THE CITY LIMITS OF LOS ANGELES:		
SPRINKLER FITTER (FIRE)	30.23	10.40

SHEE0273B 02/01/2001

	Rates	Fringes
SHEET METAL WORKER	25.90	10.14

TEAM0011E 07/01/1999

	Rates	Fringes
TRUCK DRIVERS:		
GROUP 1	20.19	11.89
GROUP 2	20.34	11.89
GROUP 3	20.47	11.89
GROUP 4	20.66	11.89
GROUP 5	20.60	11.89
GROUP 6	20.72	11.89
GROUP 7	20.97	11.89
GROUP 8	21.22	11.89
GROUP 9	21.42	11.89
GROUP 10	21.72	11.89
GROUP 11	22.22	11.89

TRUCK DRIVER CLASSIFICATIONS

GROUP 1: Truck driver

GROUP 2: Driver of vehicle or combination of vehicles - 2 axles; Traffic control pilot car excluding moving heavy equipment permit load; Truck-mounted broom

GROUP 3: Driver of vehicle or combination of vehicles - 3 axles; Boot person; Cement mason distribution truck; Fuel truck driver; Water truck - 2 axle; Dump truck, less than 16 yds. water level; Erosion control driver

GROUP 4: Driver of transit mix truck, under 3 yds.; Dumpcrete truck, less than 6-1/2 yds. water level

GROUP 5: Water truck, 3 or more axles; Truck greaser and tire person (\$0.50 additional for tire person); Pipeline and utility working truck driver, including winch truck and plastic fusion, limited to pipeline and utility work; Slurry truck driver

GROUP 6: Transit mix truck, 3 yds. or more; Dumpcrete truck,

6-1/2 yds. water level and over; Vehicle or combination of vehicles - 4 or more axle; Oil spreader truck; Dump truck, 16 yds. to 25 yds. water level

GROUP 7: A Frame, Swedish crane or similar; Forklift driver; Ross carrier driver

GROUP 8: Dump truck, 25 yds. to 49 yds. water level; Truck repair person; Water pull - single engine; Welder

GROUP 9: Truck repair person/welder; Low bed driver, 9 axles or over

GROUP 10: Dump truck - 50 yds. or more water level; Water pull - single engine with attachment

GROUP 11: Water pull - twin engine; Water pull - twin engine with attachments; Winch truck driver - \$1.25 additional when operating winch or similar special attachments

WELDERS - Receive rate prescribed for craft performing operation to which welding is incidental.
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Unlisted classifications needed for work not included within the scope of the classifications listed may be added after award only as provided in the labor standards contract clauses (29 CFR 5.5(a)(1)(v)).

In the listing above, the "SU" designation means that rates listed under that identifier do not reflect collectively bargained wage and fringe benefit rates. Other designations indicate unions whose rates have been determined to be prevailing.

WAGE DETERMINATION APPEALS PROCESS

1.) Has there been an initial decision in the matter? This can be:

- * an existing published wage determination
- * a survey underlying a wage determination
- * a Wage and Hour Division letter setting forth a position on a wage determination matter
- * a conformance (additional classification and rate) ruling

On survey related matters, initial contact, including requests for summaries of surveys, should be with the Wage and Hour Regional Office for the area in which the survey was conducted because those Regional Offices have responsibility for the Davis-Bacon survey program. If the response from this initial contact is not satisfactory, then the process described in 2.) and 3.) should be followed.

With regard to any other matter not yet ripe for the formal process described here, initial contact should be with the Branch of Construction Wage Determinations. Write to:

Branch of Construction Wage Determinations
Wage and Hour Division
U. S. Department of Labor
200 Constitution Avenue, N. W.
Washington, D. C. 20210

2.) If the answer to the question in 1.) is yes, then an interested party (those affected by the action) can request review and reconsideration from the Wage and Hour Administrator (See 29 CFR Part 1.8 and 29 CFR Part 7). Write to:

Wage and Hour Administrator

U.S. Department of Labor
200 Constitution Avenue, N. W.
Washington, D. C. 20210

The request should be accompanied by a full statement of the interested party's position and by any information (wage payment data, project description, area practice material, etc.) that the requestor considers relevant to the issue.

3.) If the decision of the Administrator is not favorable, an interested party may appeal directly to the Administrative Review Board (formerly the Wage Appeals Board). Write to:

Administrative Review Board
U. S. Department of Labor
200 Constitution Avenue, N. W.
Washington, D. C. 20210

4.) All decisions by the Administrative Review Board are final.

END OF GENERAL DECISION

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SECTION 01130

ENVIRONMENTAL PROTECTION

1 GENERAL

1.1 DEFINITIONS

For the purpose of this specification, environmental pollution and damage is defined as the presence of chemical, physical, or biological elements or agents which adversely affect human health or welfare; unfavorably alter ecological balances of importance to human life; affect other species of importance to man; or degrade the utility of the environment for aesthetic, cultural and/or historical purposes. The control of environmental pollution and damage requires consideration of air, water, and land, and includes management of visual aesthetics, noise, solid waste, radiant energy and radioactive materials, as well as other pollutants.

1.2 ENVIRONMENTAL PROTECTION REQUIREMENTS

Provide and maintain, during the life of the contract, environmental protection. Plan for and provide environmental protective measures to control pollution that develops during normal construction practice. Plan for and provide environmental protective measures required to correct conditions that develop during the construction of permanent or temporary environmental features associated with the project. Comply with Federal, State, and local regulations pertaining to the environment, including but not limited to water, air, and noise pollution.

1.2.1 Environmental Protection Plan

Within 15 days after receipt of Notice of Award of the contract and at least 7 days prior to the Preconstruction Conference, the Contractor shall submit in writing an Environmental Protection Plan (including Environmental Resources Branch) and meet with representatives of the Contracting Officer to develop mutual understanding relative to compliance with this provision and administration of the environmental protection program. Approval of the Contractor's plan will not relieve the Contractor of his responsibility for adequate and continuing control of pollutants and other environmental protection measures. The Government reserves the right to make changes in his environmental protection plan and operations as necessary to maintain satisfactory environmental protection performance. The environmental protection plan shall include but not be limited to the following:

1.2.1.1 Laws, Regulations, and Permits

The Contractor shall prepare a list of Federal, State and local laws, regulations, and permits concerning environmental protection, pollution control and abatement that are applicable to the Contractor's proposed operations and the requirements imposed by those laws, regulations and permits.

1.2.1.2 Protection of Features

The Contractor shall determine methods for the protection of features to be preserved within authorized work areas. The Contractor shall prepare a

listing of methods to protect resources needing protection, i.e., trees, shrubs, vines, grasses and ground cover, landscape features, air and water quality, fish and wildlife, soil, historical, archaeological and cultural resources.

1.2.1.3 Procedures

The Contractor shall implement procedures to provide the required environmental protection and to comply with the applicable laws and regulations. The Contractor shall set out the procedures to be followed to correct pollution of the environment due to accident, natural causes or environmental protection plan.

1.2.1.4 Permit or License

The Contractor shall obtain all needed permits or licenses.

a. The Contractor shall prepare and submit a Notice of Intent and a Storm Water Pollution Prevention Plan to the California Water Resources Board (Sacramento Office) and provide a copy to the Regional Water Quality Control Board (Los Angeles) and Corps of Engineers (including a copy to Environmental Resource Branch) four weeks prior to initiation of the project construction.

b. Waste Water Discharge Permit/ National Pollutant Discharge Elimination System (NPDES) permit shall be obtained by the Contractor and fees related to these permit should be paid by the Contractor. The construction contractor shall coordinate requirements of the West Discharge or National Pollutant Discharge (NPDES) Elimination System Permit with the Environmental Resources Branch.

1.2.1.5 Drawings

The Contractor shall include drawings showing locations of any proposed temporary excavations or embankments for haul roads, material storage areas, structures, sanitary facilities, stockpiles of earth materials, and disposal areas for excess earth material and unsatisfactory earth materials.

1.2.1.6 Environmental Monitoring Plans

The Contractor shall include environmental monitoring plans for the job site which incorporate land, water, air and noise monitoring.

1.2.1.7 Traffic Control Plan

The Contractor shall include a traffic control plan for the job site.

1.2.1.8 Surface and Ground Water

The Contractor shall establish methods of protecting surface and ground water during construction activities.

1.2.1.9 Work Area Plan

The Contractor shall include a work area plan showing the proposed activity in each portion of the area and identifying the areas of limited use or nonuse. The plan shall include measures for marking the limits of use

areas. Measures would be followed to avoid accidental spills of oil and grease during construction and debris removal operations. If such spills occur, the contractor would be required to immediately clean the affected area and remove the materials from the site.

1.2.1.10 Plan of Borrow Area

The Contractor shall include a plan of borrow area for the job site. Borrow area(s) shall not extend beyond the Work Limits shown.

1.2.1.11 Emergency Response Plan

An emergency response plan shall be prepared for responding to hazardous materials spills at project construction site. The plan will identify actions to immediately control hazardous materials spills, and procedures to notify appropriate health officials.

1.2.1.12 Noise Control Plan

The Contractor shall develop a noise control plan. Noise control features and plans shall be reviewed and approved by a noise control engineering professional.

1.3 SUBCONTRACTORS

Assurance of compliance with this section by subcontractors will be the responsibility of the Contractor.

1.4 PERMITS OBTAINED BY CORPS OF ENGINEERS AND VENTURA COUNTY

The Corps of Engineers obtained a Section 401 Water Quality Certification from the California Regional Water Quality Control Board (WQCB) and Ventura County Flood Control District obtained a Section 1601 Stream Alteration permit from the State of California, Department of Fish and Game for this project. The agreement is for the entire Santa Paula Creek Flood Control Project. Also the Biological Opinion of the National Marine Fisheries Service (NMFS) was also obtained for this Phase of the Project. The Contractor is responsible to implement all conditions/measures identified in all the permits issued by Federal, State or local resource agencies (e.g., 401 Water Quality Certification, Streambed Alteration Agreement, and Biological Opinion of NMFS - see Sections 1.4.1, 1.4.2, and 1.4.3). In case of violation, the Contractor is responsible to pay fines or penalties imposed by a resource agency, and the Contractor shall ensure compliance with the permits, which are described in the following paragraphs. An attempt was made to include the applicable measures/conditions in the specifications to be followed during the construction of Phase III. See Contract Clause entitled "PERMITS AND RESPONSIBILITIES".

401 Water Quality Certification (WQC) was obtained for the project construction (dated September 11, 1996, Case File Number 96-094). The WQC is expiring on July 2001, the Corps has received extension of an existing WQC until December 2003 by letter dated March 30, 2001. The Contractor shall follow conditions identified by the WQCB. Conditions identified in the WQC are summarized in this P&S; however, a selected Contractor shall obtain a copy of a WQC. A copy of the WQC is available upon request.

The current Stream Alteration Agreement (per Section 1601 of the California Fish & Game Code) is being revised by the Ventura County Flood Control District to include activities upstream of Stewart's Ranch Crossing. The Contractor shall follow conditions identified in the 1601 Streambed Alteration Agreement and any amendments to the Agreement during construction. A copy of the Existing Stream Alteration Agreement is available upon request.

1.4.1 Restrictions from the California Regional Water Quality Control Board

1.4.1.1 The Contractor shall develop and submit a detailed sediment erosion control and pollution prevention plan (two copies) to the WQCB (Attn: Surveillance) 15 days prior to any excavation and construction within Santa Paula Creek. If the Regional Board requires modifications prior to or during the construction phase, the plan(s) shall be modified by the Contractor, accordingly. The plan(s) shall include the use of settling basins, hay bales, and silt fences (or other appropriate measures) for any surface water diversion and groundwater (subsurface water) dewatering activities within the project site or work within any flowing streams. This plan shall also include stormwater pollution prevention measures specific to this project, such as protection of exposed slopes/banks, access routes, and temporary onsite stockpiles of excavated materials.

1.4.1.2 Upstream and downstream monitoring for turbidity and total suspended solids (TSS) shall be implemented.

These constituents shall be monitored on a daily basis during the first week of diversion/dewatering activities or work within any flowing streams, and then on a weekly basis, thereafter, until the streambed bottoms are restored.

Downstream TSS shall be maintained at ambient levels.

Where natural turbidity is between 0 and 50 NTU, increased turbidity due to project activities shall not exceed 20%. Where natural turbidity is greater than 50 NTU, increases shall not exceed 10%. The Contractor shall monitor turbidity levels, prepare a monitoring report and submit the report of water quality analysis to the WQCB and provide a copy to the Corps (Environmental Resources Branch).

1.4.1.3 For each phase, 15 days prior to any excavation/construction within Santa Paula Creek, the Contractor shall submit to the Regional Board (Attn: Surveillance) a final water diversion plan, including structure configuration, location, construction materials, equipment, operation procedures, erosion and sediment control measures, and fish exclusion provisions. If the Regional Board requires modifications prior to or during the construction, this plan shall be modified by the Contractor, accordingly. This plan may be combined with item no. 1 above. During construction, operation, and removal of the water diversion structure, any fish that may be impacted shall be removed, held, and released back or relocated to another suitable habitat prior to the activities. A copy of this plan shall be provided to the Environmental Resources Branch.

1.4.1.4 The Contractor shall apply for a permit from the California Regional Water Quality Control Board - Los Angeles Region, 101 Centre Plaza Drive, Monterey Park, California 91754-2156 for any dewatering activity (other than diversion) where pumping is required and results in the disposal

of groundwater (including subsurface water) to surface waters, groundwater, or land. Please contact Mark Pumford, Ventura Coastal Unit, at (213) 266-7596 for further information.

1.4.1.5 The limits of all construction activities shall be limited by the plans, specifications, or as approved by the Contracting officer.

1.4.1.6 No excavation/construction equipment and/or materials shall be stored within Santa Paula Creek, including wetlands and dry streambeds. All staging and storage areas shall be located outside any surface waters and equipped with adequate containment provisions.

1.4.1.7 All equipment or vehicles operated within or adjacent to surface waters shall be checked and maintained daily to prevent leaks/discharges of materials. No equipment maintenance shall be done within or near surface waters.

1.4.1.8 Designated spoil areas shall be visually marked prior to any excavation/construction activity. Stockpiling of excavated material shall be confined to these areas, and not discharged to surface waters, or wherever the spoil could be transported back to the creek or into other surface waters. The only exception is the redeposition of excess excavated material to the borrow site for the creation of the low-flow channel.

1.4.1.9 All construction activities shall follow best management practices to minimize impacts on water quality and beneficial uses. Dust control activities shall be conducted in such a manner that would not produce downstream runoff. Construction and sanitary wastes/wastewater shall be properly contained, treated, and/or disposed of, and not discharged to surface waters or groundwater.

1.4.1.10 No permanent diversion berms shall be constructed.

1.4.1.11 Sediment removal for the purpose of reaching and maintaining channel design capacity shall not involve wet excavations (i.e., an unsaturated zone of at least 1.5 meters (5 feet) above the highest anticipated level of the water table shall be preserved). Prior to excavation, the Contractor shall notify the California Regional Water Quality Control Board - Los Angeles Region, 101 Centre Plaza Drive, Monterey Park, California 91754-2156 (Attn: Surveillance) as to the status of excavation and potential impacts to groundwater. If the water table were encountered, all project activities shall stop and the Contractor shall submit a request for modification to the California Regional Water Quality Board (Attn: Surveillance Unit).

1.4.1.12 All the excess materials that are not used for backfilling or recontouring of the streambed shall be removed from the creek. The Contractor shall apply for a Waste Discharge Requirements permit, as applicable, from the California Regional Water Quality Control Board - Los Angeles Region, 320 West 4th Street, Suite 200, Los Angeles, California 90013 for inland disposal of non-hazardous contaminated soils and materials. All other waste material removed shall be relocated to a legal point of disposal or recycled for use as a soil amendment, if applicable. A legal point of disposal is defined as one for which Waste Discharge Requirements have been established by a California Regional Water Quality Control Board, and is in full compliance therewith. Please contact John Lewis, Technical

Support Unit, at (213) 266-7552 or Anthony Klecha (213) 576-6785 for further information.

1.4.1.13 The Contractor shall comply with requirements set forth in the Water Quality Control Plan, Los Angeles Region (1994) in accordance with the Porter-Cologne Water Quality Control Act (Section 13243), the following conditions represent specific discharge prohibitions for the proposed plan), Los Angeles Region (1994).

Waters shall not contain suspended or settleable material in concentrations that cause nuisance or adversely affect beneficial uses.

Waters shall be free of changes in turbidity that cause nuisance or adversely affect beneficial uses.

Waters shall not contain oils, greases, waxes or other material in concentrations that result in a visible film or coating on the surface of the water or on objects in the water, that cause nuisance, or that otherwise adversely affect beneficial uses.

Waters shall be free of coloration that causes nuisance or adversely affects beneficial uses.

Waters shall not contain floating materials, including solids, liquids, foams, and scum, in concentrations that cause nuisance or adversely affect beneficial uses.

All waters shall be maintained free of toxic substances in concentrations that are toxic to, or that produce detrimental physiological responses in, human, plant, animal, or aquatic life.

Waters shall be free of substances that result in increases in the biochemical oxygen demand (BODS), which adversely affected beneficial uses.

Waters shall not contain biostimulatory substances in concentration that promote aquatic growth to the extent that such growth causes nuisance or adversely affects beneficial uses.

Surface waters shall not contain concentrations of chemical constituents in amounts that adversely affect any designated beneficial use.

Exotic vegetation shall not be introduced around stream courses to the extent that such growth causes nuisance or adversely affects beneficial uses.

Natural hydrologic conditions necessary to support the physical, chemical, and biological characteristics present in wetlands shall be protected to prevent significant adverse effects on:

- natural temperature, Ph, dissolved oxygen, and other natural physical/chemical conditions,
- movement of aquatic fauna,
- survival and reproduction of aquatic flora and fauna, and water levels.

Existing habitats and associated populations of wetlands fauna and flora shall be maintained by:

- maintaining substrate characteristics necessary to support flora and fauna, which would be present naturally,
- protecting food supplies for fish and wildlife,
- Protecting reproductive and nursery areas, and Protecting wildlife corridors.

1.4.1.14 The Contractor shall comply with the local regulations associated with the Regional Board's municipal storm water permit that is issued to Ventura County and co-permittees under NPDES No. CAS0063339 and Waste Discharge Requirements Order No. 94-082 and any subsequent order. However, the Contractor is responsible to obtain NPDES and WDR permits specific to the construction of Phase III.

1.4.1.15 All communications with the California Regional Water Quality Control Board - Los Angeles Region, 320 West 4th Street, Suite 200, Los Angeles, California 90013 shall identify the case file number 96-094.

1.4.1.16 Discharges resulting from air-water blasting for grouted stone treatment shall require prior approval from this Regional Board. Unless the project proponent can demonstrate that all runoff resulting from air-water blasting can be contained outside of Santa Paula Creek, the project proponent shall:

- (1) Apply for a stormwater or NPDES permit for that specific activity if it is proposed that there will be a discharge to surface waters and no containment measures will be implemented; or,
- (2) Apply for general Waste Discharge Requirements (Permit) if there will be a discharge to land or groundwater (e.g., if there will be a discharge to the dry streambed portion of Santa Paula Creek, and containment measures are implemented to isolate the discharge from the flowing stream and allow it to percolate to the groundwater); or,
- (3) Notify the WQCB if containment measures within the creek will be implemented so that there is no percolation to the groundwater and no flow to the creek of any water contaminated with solids, chlorine, high pH, or other pollutants.

1.4.1.17 The Contractor shall coordinate and contact the Corps' Environmental Resource Branch prior to excavation activities are initiated at the upstream borrow site (upstream of Stewart's Ranch Crossing) to ensure that adjacent sensitive resources are avoided and not impacted.

1.4.1.18 Rocks for the upstream borrow site (upstream of Stewart's Ranch Crossing) shall be obtained between June 30 and November 1. No construction activities at the borrow site shall be performed in flowing water to avoid any impacts to aquatic resources.

1.4.1.19 At the upstream borrow site, the Construction contractor shall salvage native vegetation and the top 6-12 inches of streambed alluvial material in stockpile. After excavation, this material can be redeposited into the site to facilitate the revegetation of the excavated site.

1.4.2 Measures from the California Department of Fish and Game Streambed Alteration Agreement

All Conditions identified in the 1601 Stream Alteration Agreement (date October 11, 1999) between the Ventura County Flood Control District and the California Department of Fish and Game shall be followed, as applicable, by the contractor to ensure that construction activities does not adversely impact aquatic resources. Applicable Conditions are provided below. A complete copy of the 1601 Agreement is available for the Contractor.

1.4.2.1 Staging/storage/idling/parking areas for equipment and materials shall be located outside of the stream.

1.4.2.2 Vehicles shall not be driven or equipment operated in water covered portions of a stream or where wetland vegetation, riparian vegetation, or aquatic organisms may be destroyed, except as otherwise provided for in the Agreement and as necessary to complete authorized work.

1.4.2.3 Access to the worksite shall be via existing roads and access ramps unless specifically noticed in the EIS\EIR, environmental assessment and final Department reviewed construction plans.

1.4.2.4 Vehicles may be driven on the streambed in dry areas to traverse the distance to the work site from the access point, and in the immediate vicinity - within 15 meters (50 feet)- of the work area and only as necessary to accomplish the authorized work.

1.4.2.5 Spoil storage sites shall not be located within a stream, where spoil can be washed back into a stream, or where it will cover aquatic or riparian vegetation.

1.4.2.6 The Contractor shall construct effective water velocity dissipation devices at any/all outlet structures to minimize erosion.

1.4.2.7 Rip-rap shall only be placed in areas where shown in the plans.

1.4.2.8 Installation of bridges, culverts or other structures shall be such that water flow (velocity and low flow channel width) is not impaired. Bottoms of temporary culverts if required shall be placed at or below stream channel grade.

1.4.2.9 All plans for design of concrete sills and other features that could potentially impede fish migrations shall be/must have been approved by the California Department of Fish and Game.

1.4.2.10 The Contractor shall not construct any temporary or permanent dam, structure, flow restriction or fill except as described in the Contractor's notification.

1.4.2.11 No debris, soil, silt, sand, bark, slash, sawdust, rubbish, cement or concrete or washings thereof, oil or petroleum products or other organic or earthen material from any construction or associated activity of whatever nature shall be allowed to enter into or placed where it may be washed by rainfall or runoff into waters of the State. When operations are completed any excess materials or debris shall be removed from the work area. No rubbish shall be deposited within 45 meters (150 feet) of the high water mark of any stream.

1.4.2.12 The Contractor shall comply with all litter and pollution laws. All contractors, subcontractors, and employees shall also obey these laws and it shall be the responsibility of the Contractor to insure compliance.

1.4.2.13 Any equipment or vehicles driven and/or operated within or adjacent to the stream shall be checked and maintained daily to prevent leaks of materials that if introduced to water could be deleterious to aquatic life.

1.4.2.14 Stationary equipment such as motors, pumps, generators, and welders, located within or adjacent to the stream shall be positioned over drip pans.

1.4.2.15 No equipment maintenance shall be done within or near any stream channel where petroleum products or other pollutants from the equipment may enter these areas under any flow.

1.4.2.16 The clean-up of all spills shall begin immediately. The California Department of Fish and Game shall be notified immediately by the Contractor of any spills and shall be consulted regarding clean-up procedures.

1.4.2.17 Raw cement/concrete or washings thereof, asphalt, paint, or other coating material, oil or other petroleum products, or any other substances which could be hazardous to aquatic life, resulting from project related activities should be prevented from contaminating the soil and/or entering the waters of the State. Any of these materials, placed within or where they may enter a stream, by the Contractor or any party working under contract, or with the permission of the Contractor, shall be removed immediately.

1.4.2.18 Precautions to minimize turbidity/siltation shall be taken into account during project planning and implementation. This may require that the work site be isolated and that water be diverted around the work area by means of a barrier, temporary culvert, new channel, or other means approved by the California Department of Fish and Game. Precautions may also include placement of silt fencing, hay bales, sand bags, and/or the construction of silt catchment basins, so that silt or other deleterious materials are not allowed to pass to downstream reaches. The placement of any structure or materials in the stream for this purpose, not included in the original project description or California Department of Fish and Game approved water pollution/water diversion plan shall be coordinated with the California Department of Fish and Game. Coordination shall include the negotiation of additional Agreement provisions.

1.4.2.19 Silty/turbid water from dewatering or other activities shall not be discharged into the stream. Such water shall be settled, filtered, or otherwise treated prior to discharge. The Contractor's ability to minimize turbidity/siltation shall be the subject of pre-construction planning and feature implementation.

1.4.2.20 Upon California Department of Fish and Game determination that turbidity/siltation levels resulting from project related activities constitute a threat to aquatic life activities associated with the turbidity/siltation shall be halted until effective Department of Fish and

Game approved control devices are installed or abatement procedures are initiated.

1.4.2.21 Prior to commencing construction, the Contractor shall prepare a diversion and control of water/water pollution control plan for this project. The plan shall be consistent with the terms and conditions of this Agreement and the requirements of the U.S. Army Corps of Engineers and Regional Water Quality Control Board. The Operator shall submit this plan to the California Department of Fish and Game for review and approval. Any terms and conditions in the final approved water diversion-water pollution plan which are more restrictive than in this agreement shall be a part of this Agreement and shall be enforceable by the California Department of Fish and Game. Any changes in the original project description or California Department of Fish and Game approved water pollution/water diversion plan shall be coordinated with the California Department of Fish and Game. Coordination may include the negotiation of additional Agreement provisions.

1.4.2.22 When operations require moving of equipment across a flowing stream such operations shall be conducted without increasing stream turbidity. For repeated crossings, the Contractor shall install a bridge, culvert, or rock-fill crossing. The minimum diameter of culverts shall be 600 millimeters (24 inches). The maximum lengths of culverts shall not exceed 10 meters (35 feet). Flow velocities shall not be increased above ambient levels. Any such installation shall be approved by the California Department of Fish and Game's fishery biologist prior to placement. Should a Department of Fish and Game biologist not be available approval may be conferred by a biologist from the National Marine Fisheries Service, U.S. Fish and Wildlife Service or U.S. Corps of Engineers. The Contractor shall remove all crossings by November 1.

1.4.2.23 If a streambed has been altered during the operations, its low flow channel shall be reconfigured to simulate natural meanders, pools, riffles, falls, etc. The Contractor shall not leave the streambed/low flow channel as a flat wide channel or sluice like area. The proposed plan for reconfiguring the streambed shall be approved by the California Department of Fish and Game's fishery biologist at least 30 days prior to completion of excavation.

1.4.2.23 Rock, gravel, and/or other materials shall not be imported to, taken from or moved within the bed or banks of the stream, except as otherwise addressed in the EIS/EIR and EA. In areas where vegetation must be restored following gravel or fill removal, the Contractor shall salvage native topsoil (stream bed materials with native vegetation-the top 6 to 12 inch layer), after sorting of material has occurred, from the worksite prior to construction. Following construction, salvaged alluvium shall be returned to the work area/placed in the restoration site.

a. The Department recommends the following methods for salvaging, stockpiling, and replacing streambed alluvium. Salvaged alluvial material should be stockpiled in a location where it is unlikely to be disturbed during construction in piles which do not exceed 8 feet in height (3 feet if stored more than one year). The soil should be maintained in a weed-free condition during storage. Following completion of construction, the topsoil should be tested to determine if it is suitable for restoration, and amended if necessary to encourage growth. Graded slopes should be maintained in a weed-free state prior to revegetation. Construction areas should be prepared in a

manner so as to prevent soil compaction in the upper 1-2 feet. A minimum 4-inch deep layer of topsoil should be distributed in the area to be revegetated, and the area should be rolled with a sheepsfoot roller to bind the soil layers.

b. The Contractor shall not locate spoil storage sites within the stream, where spoil can be washed back into the stream, or where spoil can cover aquatic or riparian vegetation.

1.4.2.25 If pumps are required, intakes placed in stream water shall be fitted with 3 millimeter (1/8 inch) or smaller mesh screens for January 1, through March 30, and 6 millimeters (1/4 inch) or smaller mesh screens thereafter. No velocity increases shall be allowed at the pump intake screen. Intake structures shall be approved by the California Department of Fish and Game's fishery biologist.

1.4.2.26 The Contractor shall not allow any activity within flowing water from November 1 to March 31, the recognized sensitive period for wildlife and aquatic species known to inhabit the area. Any work in flowing water during the period from April 1 to June 1 shall be either approved by the California Department of Fish and Game's fishery biologist (or functional equivalent as explained in i below) or surveyed in the following manner to avoid impacts to steelhead trout:

a. Contractor shall provide a qualified fisheries biologist who shall be present at all times during the diversion and control of water. The biologist shall immediately notify the Contractor and Contracting Officer if diversion activities have the potential to adversely affect steelhead and the Contractor shall cease or modify construction activities as necessary.

b. The area extending from 100 feet upstream to 100 feet downstream shall be surveyed at random locations to determine the presence or absence of steelhead. The surveying will be done twice a week during the period of March 15 to June 1 while work is being done in flowing water.

c. Surveying shall take place at least 2 weeks prior to the start of work in flowing water. A qualified fisheries biologist shall be present at all times during the diversion of the Creek. The fisheries biologist shall immediately notify the Corps during construction activities, if diversion activities have the potential to adversely affect steelhead.

d. Work in the Creek shall only take place if steelhead are not present.

e. The operator is responsible for carrying out the testing and notifying the California Department of Fish & Game of the results.

f. Diversion of water from one low flow alignment to another alignment shall occur gradually to allow any fish or other aquatic wildlife the opportunity to migrate from the old low flow (which will be dewatered) to the new low flow.

g. Any remaining pools of the old low flow shall be monitored by the fisheries biologist until they are dry enough to determine that no

salmonid fish remain trapped in the pools. Such monitoring may require several days depending upon the size of the pools.

h. If any salmonid fish are detected in the drying pools by the fisheries biologist, the Contractor shall immediately inform the National Marine Fisheries Service and the California Department of Fish and Game. No attempt shall be made to move the trapped salmonids without approval of NMFS and only by personnel with appropriate permits.

i. If the California Department of Fish and Game's fishery biologist is not available, approval to work in the stream based on the above conditions can be conferred by a biologist from the National Marine Fishery Service.

1.4.2.27 The Contractor shall telephone the California Department of Fish and Game's fishery biologist Mauricio Cardenas at (805) 568-1231, prior to commencing activities within the bed, bank, and channel of any stream or river. The Contractor shall leave his/her name, date and time called, telephone number, the stream name, work location, nature of planned activities, and proposed schedule.

1.4.2.28 The Contractor shall provide a copy of this Section 1601 Agreement, between the California Department of Fish and Game and Ventura County Flood Control District to all contractors, subcontractors, and the Contractor's project supervisors. COPIES OF THE AGREEMENT AND ALL REQUIRED PERMITS AND SUPPORTING DOCUMENTS SHALL BE READILY AVAILABLE AT WORK SITES AT ALL TIMES DURING PERIODS OF ACTIVE WORK and must be presented to any California Department of Fish and Game personnel, or personnel from another agency upon demand.

1.4.2.29 The Contractor shall notify the Department in writing at least five (5) days prior to initiation of construction and at least five (5) days prior to completion of construction activities. Notification shall be sent to the California Department of Fish and Game at 330 Golden Shore, Suite 50, Long Beach, California 90802, Attn: ES. FAX Number (310) 590-5192 or 5193 (Reg 5-LB).

1.4.2.30 The Contractor grants to the California Department of Fish and Game employees and/or their consultants (accompanied by a California Department of Fish and Game employee) the right to enter the project site at any time to ensure compliance with the terms and conditions of this Agreement and/or to determine the impacts of the project on wildlife and aquatic resources and/or their habitats.

1.4.2.31 The California Department of Fish and Game reserves the right to enter the project site at any time to ensure compliance with terms/conditions of this Agreement.

1.4.2.32 The Department reserves the right to cancel this Agreement after giving notice to the Contractor in writing if the Department determines that the Contractor has breached any of the terms or conditions of the Agreement.

1.4.2.33 The Department reserves the right to suspend or cancel this Agreement for other reasons, including but not limited to, the following:

- a. The Department determines that the information provided by the Contractor in support of this Agreement/Notification is incomplete or inaccurate;
- b. The Department obtains new information that was not known to it in preparing the terms and conditions of this Agreement;
- c. The condition of, or affecting fish and wildlife resources change; and
- d. The California Department of Fish and Game determines that project activities have resulted in a substantial adverse effect on the environment.

1.4.3 Measures from National Marine Fisheries Service

All Reasonable and Prudent Measures and Terms and Conditions identified in the recent (September 27, 2000) Biological Opinion prepared by the National Marine Fisheries Service shall be followed, as applicable, by the contractor to ensure that construction activities do not jeopardize the continued existence of the endangered steelhead. The applicable Terms and Conditions and Reasonable and Prudent Measures are provided below. A complete copy of the Biological Opinion is available for the Contractor.

1.4.3.1 The Contractor shall conduct in-channel work in a manner and time that avoids or reduces disruption of steelhead migration.

1.4.3.2 The Contractor shall monitor and maintain the inlet structure/fish ladder to minimize delay and stranding of steelhead.

1.4.3.2 The Contractor shall employ a fisheries biologist for the purpose of assessing steelhead presence/absence in the Project Area prior to construction, and for removing and relocating steelhead from the affected area.

1.4.3.3 The Contractor shall monitor post-construction channel conditions associated with the supplemental rock source excavation upstream of the inlet structure/fish ladder to facilitate fish passage and reduce turbidity.

1.4.3.4 The Contractor shall complete in-channel work activities, between grouted side slopes, to avoid flowing water during the potential steelhead migration period; the in-channel work period is June 30 through November 1.

1.4.3.5 The Contractor shall not conduct in-channel work between November 1 and December 31, if winter storm(s) have generated flows that facilitate the operation of the Vern Freeman Diversion fish ladder on the Santa Clara River.

1.4.3.6 The Contractor shall employ the following measures for in-channel work.

- a. The area shall be visually surveyed for steelhead presence by a qualified fisheries biologist or technician prior to working in-channel.

b. The channel shall be diverted or piped outside/around the work area. Equipment shall avoid flowing water other than temporary crossing or diverting activities.

c. Residual surface water associated with diverted channel shall be monitored for salmonid presence by a qualified fisheries biologist or technician as soon as flows recede. If salmonid are observed in the isolated channel, they shall be immediately relocated to the flowing reach by a qualified fisheries biologist or technician.

d. Temporary culverts used in construction, maintenance, and/or operations shall be placed at stream grade and of adequate size to not increase stream velocity.

e. Silt fences or mechanisms to avoid sediment input to the flowing channel shall be erected adjacent to flowing water if sediment input to the stream may occur.

1.4.3.7 The Contractor shall maintain the low flow channel at design specifications to facilitate steelhead migration. Contact NMFS (562/980-4020) during channel maintenance evaluation and prior to any in-channel work activities.

1.4.3.8 The Contractor shall perform the following to ensure that constructed fish ladder is functioning properly.

a. Validate and report inlet structure/fish ladder design specifications, such as depth and velocity, during the first winter/spring flow season following construction.

b. Monitor sediment and debris accumulation upstream, downstream, and between weirs of the inlet structure/fish ladder, and evaluate potential low flow isolated pool formation or other fish migration blockage following all sediment transporting flows.

c. Remove accumulated sediment and debris to insure passage to and from the fish ladder, and drainage between weirs at all flows prior to threat of isolated pool formation or other fish migration blockage.

1.4.3.9 The Contractor shall employ the following measures relative to employing a fisheries biologist to minimize impacts to steelhead.

a. If flowing water will be disturbed by the construction, the Contractor shall have a qualified fisheries biologist/technician survey the complete area that may be disturbed, including downstream turbidity, within one week of the beginning of in-water work. The fishery biologist shall be present during activities that occur within flowing water, and be empowered to halt work activity and to recommend measures for avoiding adverse effects to steelhead and their habitat.

b. The fisheries biologist/technician shall have knowledge and experience in anadromous salmonid biology and ecology, fish/habitat relationships, biological monitoring, and handling, collecting, and relocating salmonid species.

c. The fisheries biologist/technician shall rescue any steelhead that may become stranded and relocate them to an appropriate place in Santa Paula Creek or Santa Clara River, depending upon the life history stage

of the fish and flow conditions in Santa Paula Creek and the Santa Clara River. The fisheries biologist/technician shall note the number of individuals observed in the affected area, the number of individuals relocated, the approximate size of individuals, and the date and time of the collection and relocation. One or more of the following methods shall be used to capture steelhead: dip net, seine, throw net, minnow trap, and hand. Electrofishing may only be used if NMFS has reviewed the biologist's qualifications and given written approval.

d. The Contractor shall require the fisheries biologist/ technician to contact NMFS (562/9804026) or 562/980-4054) immediately if one or more steelhead are found dead or injured. The purpose of the contact shall be to review the activities resulting in take and to determine if additional protective measures are required.

1.4.3.10 The Contractor shall conduct the following measures to ensure lessen impacts associated with the rock removal from the upstream borrow source.

a. Re-contour low flow channel to mimic pre-project conditions or to the low flow design specifications of the flood control channel.

b. Re-contour flood plain/terrace areas to prevent areas of depressions that may form isolated pools and strand steelhead.

c. Stockpile surface material that may contain native vegetation and/or seed material and redistribute across flood plain/terrace adjacent to channel.

d. Establish permanent photo-points to document pre- and post-construction; repeat photos following the first and second winter/spring storm season. Revegetate disturbed area to the approximate pre-construction density or greater with native vegetation if the area has not naturally revegetated within the second growing period following construction.

1.5 REGULATORY REQUIREMENTS

The Contractor shall comply with all state regulatory and statutory requirements.

2 PRODUCTS (NOT APPLICABLE)

3 EXECUTION

3.1 PROTECTION OF ENVIRONMENTAL RESOURCES

The environmental resources within the project boundaries and those affected outside the limits of permanent work under this contract shall be protected during the entire period of this contract. The Contractor shall confine his activities to areas defined by the contract drawings or specifications. Environmental protection shall be as stated in the following subparagraphs.

3.1.1 Protection of Land Resources

Prior to the beginning of any construction, the Contracting Officer will identify all land resources to be preserved within the Contractor's work

area. The Contractor shall not remove, cut, deface, injure, or destroy land resources including trees, shrubs, vines, grasses, top soil, and land forms without special permission from the Contracting Officer. No ropes, cables, or guys shall be fastened to or attached to any trees for anchorage unless specifically authorized. Where such special emergency use is permitted, the Contractor shall provide effective protection for land and vegetation resources at all times as defined in the following subparagraphs.

3.1.1.1 Work Area Limits

Prior to any construction, the Contractor shall mark the areas where no work is to be performed under this contract. Isolated areas within the general work area which are to be saved and protected shall also be marked or fenced. Monuments and markers shall be protected before construction operations commence and during all construction operations. Where construction operations are to be conducted during darkness, the markers shall be visible during darkness. The Contractor shall convey to his personnel the purpose of marking and/or protection of all necessary objects.

3.1.1.2 Protection of Landscape

Trees, shrubs, vines, grasses, land forms and other landscape features to be preserved, indicated and defined on the drawings submitted by the Contractor as a part of the Environmental Protection Plan, shall be clearly identified by marking, fencing, or wrapping with boards, or any other approved techniques.

3.1.1.3 Reduction of Exposure of Unprotected Erodable Soils

Earthwork brought to final grade shall be finished as indicated and specified. Side slopes and back slopes shall be protected as soon as practicable upon completion of rough grading. All earthwork shall be planned and conducted to minimize the duration of exposure of unprotected soils. Except in instances where the constructed feature obscures borrow areas, quarries and waste material areas, these areas shall not initially be cleared in total. Clearing of such areas shall progress in reasonably sized increments as needed to use the areas developed as approved by the Contracting Officer.

3.1.1.4 Temporary Protection of Disturbed Areas

Such methods as necessary shall be utilized to effectively prevent erosion and control sedimentation, including but not limited to the following:

- a. Retardation and Control of Runoff. Runoff from the construction site shall be controlled by construction of diversion ditches, benches, and berms to retard and divert runoff to protected drainage courses, and the Contractor shall also utilize any measures required by area-wide plans approved under Paragraph 208 of the Clean Water Act.
- b. Sediment Basins. Sediment from construction areas shall be trapped in temporary or permanent sediment basins. The Contractor shall institute effluent quality monitoring programs as required by state and local environmental agencies.

3.1.1.5 Erosion and Sedimentation Control Devices

The Contractor shall construct or install all temporary and permanent erosion sedimentation control features. Temporary erosion and sediment control measures such as berms, dikes, drains, sedimentation basins, grassing and mulching shall be maintained until permanent drainage and erosion control facilities are completed and operative.

3.1.1.6 Location of Contractor Facilities

At the option of Contractor, the Contractor's field offices, staging areas, stockpiles, storage, and temporary buildings may be placed in areas designated on the contract drawings and approved by the Contracting Officer. Temporary movement or relocation of Contractor facilities shall be made only on approval by the Contracting Officer.

3.1.1.7 Borrow Areas on Government Property

Borrow areas on government property shall be managed to minimize erosion and to prevent sediment from entering nearby water courses or lakes.

3.1.1.8 Disposal Areas on Government Property

Disposal areas on government property shall be managed and controlled to limit material to areas designated and prevent erosion of soil or sediment from entering nearby water courses. Disposal areas shall be developed in accordance with the grading plan indicated on the contract drawings.

3.1.1.9 Temporary Excavation and Embankments

Temporary excavation and embankments shall be controlled to protect adjacent areas from contamination.

3.1.1.10 Disposal of Solid Wastes

Solid wastes (excluding clearing debris) shall be placed in containers which are emptied on a regular schedule. All handling and disposal shall be conducted to prevent contamination. The Contractor shall transport all solid waste off government property and dispose of it in compliance with Federal, State, and local requirements for solid waste disposal.

3.1.1.11 Disposal of Chemical Wastes

Chemical wastes shall be stored in corrosion resistant containers, removed from the work area and disposed of in accordance with Federal, State, and local regulations.

3.1.1.12 Disposal of Discarded Materials

Discarded materials other than those which can be included in the solid waste category shall be handled as directed by the Contracting Officer.

3.1.1.13 Disposal of Contaminated Soils

- a. The Contractor shall monitor excavations and areas of earthmoving for gaseous emissions and shall sample and analyze any suspected materials. If materials are verified to be contaminated, notify the

Contracting Officer for appropriate action. The Contractor shall take remedial action based on the extent and magnitude of contaminated conditions as directed by the Contracting Officer.

b. Contaminated soils encountered during project construction shall be disposed of in accordance with applicable state and federal regulations. Appropriate actions shall be taken to minimize exposure to construction workers, recreational users, and nearby residents.

3.2 HISTORICAL, ARCHAEOLOGICAL AND CULTURAL RESOURCES

Existing historical, archaeological and cultural resources within the Contractor's work area will be so designated by the Contracting Officer and precautions shall be taken by the Contractor to preserve all such resources as they existed at the time they were pointed out to the Contractor. The Contractor shall install all protection for these resources so designated on the contract drawings and shall be responsible for their preservation during this contract. If during construction items of apparent archaeological or historical interest are discovered, they shall be left undisturbed and the Contractor shall report the find immediately to the Contracting Officer.

3.3 PROTECTION OF WATER RESOURCES

The Contractor shall keep construction activities under surveillance, management and control to avoid pollution of surface and ground waters. Special management techniques as set out below shall be implemented to control water pollution by the listed construction activities which are included in this contract by implementing the following Best Management Practices when excavating material from the Creek during cleanout operations to mitigate impacts to aquatic habitat:

a. Pipe culverts shall be placed in the low flow stream where the stream must be crossed on a regular basis. The Contractor shall not allow any activity within flowing water from November 1 to March 31 the recognized sensitive period for wildlife and aquatic species known to inhabit the area. All culverts or pipes shall be removed by November 1. Any work in flowing water during the period from April 1 to June 1 shall be either approved by the Department's fishery biologist (or functional equivalent) or surveyed in the manner prescribed in paragraph 64 of the California Department of Fish and Game Agreement Regarding Proposed Stream or Lake Alteration (see Encl. 2).

b. The Contractor shall measure the turbidity level and ensure that the turbidity levels are under the levels identified in the 401 Water Quality Certification. Periodically, the Corps environmental staff would monitor project construction to ensure that turbidity levels remain within acceptable range; if those levels increase, additional measures would be developed and implemented to limit turbidity.

c. Silt fencing, hay bales, sand bags, and/or the construction of silt catchment basins shall be placed downstream of any operation which may create turbidity. Such devices shall reduce turbidity to that level existing upstream of the cleanout activities.

d. Construct a low-flow channel that meanders within the middle third of the stream bottom. The design specifications of the low-flow

channel shall be as shown on Sheet 14 of the Plans. This sheet shows the typical alignment and dimensions of the low-flow (pilot) channel.

e. Excavate sediment and debris from the channel in such a manner as to leave the stream bottom rough and irregular rather than smooth, both across the channel, as well as, along the channel. Leave large rock to create randomly-spaced shallow pools along the stream inter-connected by riffles created by small and medium rock.

f. Leave stream bottom rough and irregular rather than smooth.

g. Water used for project construction shall be contamination free.

3.3.1 Washing and Curing Water

Waste waters directly derived from construction activities shall not be allowed to enter water areas. These waste waters shall be collected and placed in retention ponds where the suspended materials can be settled out or the water evaporated in order to separate the pollutants from the water.

3.3.2 Diversion Operations

The Contractor shall plan his operations and perform all work necessary to minimize adverse impact or violation of the water quality standard for the State of California. Construction operations for dewatering, removal of berms and pipes shall be controlled at all times to limit impact of water turbidity on the habitat for wildlife and impacts on water quality for downstream use.

3.3.3 Stream Crossings

Stream crossings shall be controlled during construction. Crossings shall provide movement of materials or equipment which do not violate water pollution control standards of the Federal, State or local government.

3.3.4 Monitoring of Water Areas Affected by Construction Activities

Monitoring of water areas affected by construction activities shall be the responsibility of the Contractor. All water areas affected by construction activities shall be monitored by the Contractor.

3.3.5 Water Contamination

In order to prevent contamination of ground water and water along waterways; all refuse, oil, greases, and other petroleum products; all toxic materials; all cement or concrete; or water containing such materials shall be disposed of in a manner to prevent their entry into the ground water.

3.3.6 Hazardous Materials

If hazardous materials are released during construction, appropriate actions shall be taken to minimize the exposure of fishery and wildlife resources construction workers, and nearby residents.

3.4 PROTECTION OF FISH AND WILDLIFE RESOURCES

The Contractor shall keep construction activities under surveillance, management and control to minimize interference with, disturbance to and damage of fish and wildlife. Species that require specific attention along with measures for their protection shall be listed by the Contractor prior to beginning of construction operations.

3.5 PROTECTION OF AIR RESOURCES

The Contractor shall keep construction activities under surveillance, management and control to minimize pollution of air resources. All activities, equipment, processes, and work operated or performed by the Contractor in accomplishing the specified construction shall be in strict accordance with the State of California, Ventura County Air Pollution Control District and all Federal emission and performance laws and standards. Special management techniques as set out below shall be implemented to control air pollution by the construction activities which are included in the contract.

- a. To reduce fugitive dust, the excavation site and the stockpile material shall be watered twice a day and the unpaved roads shall be watered three times a day.
- b. When wind speeds exceed 20 miles per hour, all excavation and grading operations shall be suspended.
- c. Truck speeds on unpaved roads shall not exceed 15 miles per hour.
- d. Operation of heavy equipment shall be limited to the hours between 8:00 a.m. and 5:00 p.m. Truck transportation shall be permitted between 7:00 a.m. and 7:00 p.m., Monday through Saturday. No operation or transportation shall occur on Sundays.
- e. Truck traffic shall be limited to the designated haul route; Harvard/Telegraph Road and Hallock Drive shall be used to access Highway 126.

3.5.1 Particulates

Dust particles, aerosols, and gaseous by-products from all construction activities, processing and preparation of materials, such as from asphaltic batch plants, shall be controlled at all times, including weekends, holidays and hours when work is not in progress. The Contractor shall maintain all excavations, stockpiles, haul roads, permanent and temporary access roads, plant sites, spoil areas, borrow areas, and all other work areas within or outside the project boundaries free from particulates which would cause the air pollution standards mentioned in the paragraph: PROTECTION OF AIR RESOURCES to be exceeded or which would cause a hazard or a nuisance. Sprinkling, chemical treatment of an approved type, light bituminous treatment, baghouse, scrubbers, electrostatic precipitators or other methods will be permitted to control particulates in the work area. Sprinkling, to be efficient, must be repeated at such intervals as to keep the disturbed area damp at all times. The Contractor must have sufficient competent equipment available to accomplish this task. Particulate control shall be performed as the work proceeds and whenever a particulate nuisance or hazard occurs.

3.5.2 Hydrocarbons and Carbon Monoxide

Hydrocarbons and carbon monoxide emissions from equipment shall be controlled to Federal and State allowable limits at all times.

3.5.3 Odors

Odors shall be controlled at all times for all construction activities, processing and preparation of materials.

3.5.4 Monitoring Air Quality

Monitoring of air quality shall be the responsibility of the Contractor. All air areas affected by the construction activities shall be monitored by the Contractor.

3.6 NOISE

3.6.1 Construction Equipment and Vehicles

All noise-producing construction equipment and vehicles using internal combustion engines shall be equipped with mufflers, and air-inlet silencers where appropriate, in good operating condition that meet or exceed original factory specification. Mobile or fixed "package" equipment (e.g., arc-welder, air compressor) shall be equipped with shrouds and noise control features that are readily available for that type of equipment.

3.6.2 Mobile or Fixed Equipment

All mobile or fixed noise-producing equipment used on the project, which is regulated for noise output by a local, state, or federal agency, shall comply with such regulation.

3.6.3 Electrically-Powered Equipment

Electrically-powered equipment instead of pneumatic or internal combustion powered equipment shall be used, where feasible.

3.6.4 Noise-Producing Construction Activity

Noise-producing construction activity shall comply with local noise control regulations.

3.7 TESTS

The Contractor shall establish and maintain quality control for environmental protection operations to assure compliance with contract requirements and maintain records of his quality control for all construction operations, including, but not limited to the following items. The Contractor shall record on daily reports any problems in complying with laws, regulations and ordinances and corrective action taken. Three copies of these records and tests, as well as the records of corrective action taken, shall be furnished the Government as directed by the Contracting Officer.

3.7.1 Laws, Regulations and Ordinances

The Contractor must comply with all Federal, State, and local laws, regulations and ordinances concerning pollution control.

3.7.2 Protection of Land Resources

The Contractor shall prevent landscape defacement and provide post-construction clean-up.

3.7.3 Protection of Water Resources

The Contractor shall prevent the contamination of creeks, ditches, or other bodies of water with harmful chemicals; the Contractor shall dispose of waste materials; and the Contractor shall provide erosion control.

3.7.4 Pollution Control Facilities

The Contractor shall provide for the maintenance of pollution control facilities. The Contractor shall conduct a training course on the maintenance of pollution control facilities.

3.8 INSPECTION

The Contracting Officer will notify the Contractor in writing of any observed noncompliance with the Contractor's environmental protection plan. The Contractor shall, after receipt of such notice, inform the Contracting Officer of proposed corrective action and take such action as may be approved. If the Contractor fails to comply promptly, the Contracting Officer may issue an order stopping all or part of the work until satisfactory corrective action has been taken. No time extensions will be granted or costs or damages allowed to the Contractor for any such suspension.

3.9 POST CONSTRUCTION CLEANUP

The Contractor shall clean up all areas used for construction.

3.10 RESTORATION OF LANDSCAPE DAMAGE

The Contractor shall restore all landscape features damaged or destroyed during construction operations outside the limits of the approved work areas. Such restoration shall be in accordance with the plans submitted for approval by the Contracting Officer.

3.11 MAINTENANCE OF POLLUTION FACILITIES

The Contractor shall maintain all constructed facilities and temporary pollution control devices for the duration of the contract or for that length of time construction activities create the particular pollutant.

3.12 TRAINING OF CONTRACTOR PERSONNEL IN POLLUTION CONTROL

The Contractor shall train his personnel in all phases of environmental protection. The training shall include methods of detecting and avoiding pollution, familiarization with pollution standards, both statutory and contractual, and installation and care of facilities (vegetative covers and

instruments required for monitoring purposes) to insure adequate and continuous environmental pollution control.

3.13 ESTHETIC TREATMENT AND EROSION CONTROL

The exposed grouted stone sideslope throughout the channel shall be air-water blasted as described below to achieve a more natural appearance:

- a. The Grouted Stone Protection shall be installed such that one third (1/3) to one half (1/2) of the exposed stones project above the grout line.
- b. The exposed stone surface shall be thoroughly cleaned by air-water blasting or other approved method. The air-water blasting shall be capable of producing a minimum pressure of (689kPa) 100 psi and shall be of such nature as to adequately perform the work required.
- c. The approved colored grout will be allowed to set for a minimum of one hour (or other length of time as specified by the Contracting Officer) before air-water blasting is commenced. The air-water blasting will be at right angles to the surface of the grout.

-- End of Section --

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SITE WORK

SECTION 01440

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SECTION 01440

CONTRACTOR'S QUALITY CONTROL

1. GENERAL.

The Contractor shall establish and maintain an effective quality control system.

The quality control system shall consist of plans, procedures, and organization necessary to provide materials, equipment, workmanship, and operations which comply with contract requirements. The system shall cover site operations, both onsite and offsite, and shall be keyed to the proposed sequence.

2. QUALITY CONTROL PLAN.

2.1 General. The Contractor shall furnish for approval by the Government, not later than 15 days after receipt of Notice to Proceed (NTP), the draft Contractor Quality Control (CQC) Plan. The plan has to be approved by the government in order to proceed. The final plan shall be submitted within 30 days after NTP. The plan shall identify personnel, procedures, instructions, records, and forms to be used. If the Contractor fails to submit an acceptable CQC plan within the time herein prescribed, the Contracting Officer may refuse to allow site activities to start if an acceptable plan is not furnished or withhold funds from progress.

2.2 Coordination Meeting. Before start of construction, the Contractor shall meet with the Contracting Officer or an Authorized Representative and discuss the Contractor's quality control system. During the meeting, a mutual understanding of the system details shall be developed, including the forms for recording the CQC operations, control activities, testing, administration of the system for both onsite and offsite work, and the interrelationship of Contractor's management and control with the Government's Quality Assurance (inspection). Minutes of the meeting shall be prepared and signed by both the Contractor and the Contracting Officer. The minutes shall become a part of the contract file. There may also be occasions when subsequent conferences will be called by either party to reconfirm mutual understandings, and/or address deficiencies in the CQC system or procedures which may require corrective action by the Contractor.

2.3 The Quality Control Plan. This plan shall include as a minimum, the following, to cover all construction operations, both on-site and off-site, including work by subcontractors, manufacturers, suppliers and purchasing agents:

a. A description of the quality control organization including chart showing lines of authority and acknowledgment that the Contractor will follow all aspects of the work specified herein.

b. The name, qualifications, duties, responsibilities and authorities of each person assigned a quality control function for the Contractor to implement work at each site. The staff shall include a quality control manager who shall report to the Contractor's project manager or someone higher in the Contractor's organization. The project manager in this context shall mean the individual with responsibility for the overall management of the project including quality of production.

c. A copy of the letter to the Quality Control Manager signed by an authorized official of the firm which describes the responsibilities and delegates sufficient authorities to adequately perform the functions of the Quality Control Manager including authority to stop work which is not in compliance with the contract. The Quality Control Manager shall issue letters of direction to all other various quality control representatives outlining duties,

authorities and responsibilities. Copies of these letters will also be furnished to the Government.

d. Procedures for scheduling and managing submittals, including those of subcontractors, suppliers and purchasing agents. The procedures are in accordance with SECTION: SUBMITTAL PROCEDURES.

e. Control, verification and acceptance testing procedures for each specific test to include the test name, specification paragraph requiring test, feature of work to be tested, test frequency, and person responsible for each test. (Laboratory facilities will be approved by the Contracting Officer.)

f. Procedures for tracking preparatory, initial, and follow-up control phases and control, verification, and acceptance tests including documentation.

g. Procedures for tracking construction deficiencies from identification through acceptable corrective action. These procedures will establish verification that identified deficiencies have been corrected.

h. Reporting procedures including proposed reporting formats.

I. General Quality Assurance and Quality Control procedures. The Contractor shall submit to the Government the number of QA and QC samples and what they will be analyzed for. Details about test procedures, detection limits and sample collection and preservation will also be provided by the Contractor.

2.4 Acceptance of Plan. Acceptance of the Contractor's CQC plan is required prior to site work at each site. Acceptance is conditional and will be predicated on satisfactory performance during the implementation of the project.

The Government reserves the right to require the Contractor to make changes in his CQC plan and operations including removal of personnel as necessary to obtain the quality specified.

2.5 Notification of Changes. After acceptance of the CQC plan, the Contractor shall notify the Contracting Officer in writing of any proposed change. Proposed changes are subject to acceptance by Contracting Officer.

3. QUALITY CONTROL ORGANIZATION.

3.1 Quality Control Manager. The Contractor shall identify an individual, within his organization at the site of the work, who shall be responsible for overall management of CQC and have the authority to act in all CQC matters for the Contractor. The CQC manager shall **not** be allowed to perform as the project manager, superintendent, field foreman, or any other positions for the duration of the project contract and shall **not** be allowed to act or substitute for those positions or any other positions for the duration of the project construction. This quality control manager shall be approved by the Contracting **Officer** and **shall be on-site during working hours and at all times during construction.**

3.2 Personnel. A staff shall be maintained under the direction of the quality control manager to perform all quality control activities. The actual strength of the staff during any specific work period may vary to cover work phase needs, shifts, and rates of placement. The personnel of this staff shall be fully qualified by experience and technical training to perform their assigned responsibilities and shall be directly hired by and work for the Prime Contractor, and subject to acceptance by the Contracting Officer. The Contractor will add additional staff at no cost to the project, when necessary.

4. SUBMITTALS. Submittals shall be as specified in SECTION: SUBMITTAL PROCEDURES. The CQC organization shall be responsible for certifying that all submittals are in compliance with the contract requirements.

5. QUALITY CONTROL. Contractor Quality Control is the means by which the Contractor ensures that the construction including that of subcontractors, suppliers and manufacturers comply with the requirements of the contract plans and specifications. The controls shall be adequate to cover all construction operations, including both onsite and offsite fabrication, and will be keyed to the proposed construction sequence. The controls shall include at least three phases of inspection for all defined features of work as follows:

5.1 Preparatory Phase (Inspection). This shall be performed prior to beginning any work on any definable feature of work. It shall include a review of contract plans and applicable specifications; a check to assure that all materials and/or equipment have been tested, submitted and approved; a check to assure that provisions have been made to provide required control inspection and testing; a physical examination of materials, equipment and sample work to assure that they conform to approved shop drawings or submittal data and that all materials and/or equipment are on hand, and properly stored. The Contracting Officer Representative (COR) shall be notified at least 24 hours in advance of the preparatory inspection and such inspection shall be made a matter of record in the Contractor's Quality Control documentation as required below. Subsequent to the preparatory inspection and prior to commencement of work, the Contractor shall instruct each applicable worker as to the acceptable level of workmanship required in his CQC plan in order to meet contract specifications.

5.2 Initial Phase (Inspection). This phase shall be performed at the beginning of a defined feature of work. The following shall be accomplished: examination of the quality of workmanship, review of control testing for compliance with contract requirements, use of defective or damaged materials, omissions, and dimensional requirements. The Contracting Officer's Representative shall be notified at least 24 hours in advance of the initial inspection and such inspection shall be made a matter of record, and attached to the daily QC report.

5.3 Follow-up Phase (Later Inspections). These shall be performed daily to assure continuing compliance with contract requirements, including control testing, until completion of the particular feature of work. Such inspections shall be made a matter of record in the CQC documentation as required below. Final follow up inspections shall be conducted and test deficiencies corrected prior to the start of additional features of work which may be affected by the deficient work. The Contractor shall not build upon or conceal non-conforming work.

5.4 Additional Preparatory and Initial Phases. Additional preparatory and initial phases may be conducted on the same definable features of work as determined by the Government if the quality of ongoing work is unacceptable; or if there are changes in the applicable QC staff or in the on-site production supervision or work crew; or if work on a definable feature is resumed after a substantial period of inactivity, or if other problems develop.

6. TESTS.

6.1 Testing Procedure. The Contractor shall perform tests specified or required to verify that control measures are adequate to provide a product which conforms to contract requirements. The Contractor shall procure the services of a Corps of Engineers approved testing laboratory which has been certified by the State of California and validated by the Corps of Engineers at Los Angeles, or establish a State-certified testing laboratory at the project site. Certification and validation shall be for the required test parameters. A list of tests which the Contractor understands he is to perform shall be furnished as a part of the CQC plan to the Contracting Officer. The list shall give the test name, frequency, specification paragraph containing the test requirements, and

the personnel and laboratory responsible for each type of test and an estimate of the number of tests required. The Contractor shall perform the following activities and record and provide the following data:

- a. Verification that testing procedures comply with contract requirements.
- b. Verification that facilities and testing equipment are available and comply with testing standards.
- c. Verification that recording forms, including all of the test documentation requirements, have been prepared.
- d. Checking of test instrument calibration data against certified standards.
- e. Results of all tests taken, both passing and failing tests, will be recorded on the Quality Control report for the date taken. Specification paragraph reference, location where tests were taken, and the sequential control number identifying the test will be given. Actual test reports may be submitted later, if approved by the Contracting Officer, with a reference to the test number and date taken. An information copy of tests performed by an off-site or commercial test facility will be provided directly to the Contracting Officer. Failure to submit timely test reports, as stated, may result in nonpayment for related work performed and disapproval of the test facility for this contract.

6.2 Capability Check. The Contracting Officer will have the right to check laboratory equipment in the proposed laboratory for compliance with the standards set forth in the contract specifications and to check laboratory technician's testing procedures and techniques.

6.3 Capability Recheck. If the selected laboratory fails the capability check, the Contractor will be assessed a charge of \$675.00 to reimburse the Government for each succeeding recheck of the laboratory or the checking of a subsequently selected laboratory. Such costs will be deducted from the contract amount due the Contractor.

6.4 Project Laboratory. The Contracting Officer will have the right to utilize the Contractor's control testing laboratory and equipment to make assurance tests and to check the Contractor's testing procedures, techniques, and test results at no additional cost to the Government.

6.5 Furnishing of Transportation of Samples for Testing. Costs incidental to the transportation of samples or materials will be borne by the Contractor. Samples of materials for test verification and acceptance testing by the Government shall be delivered to the Corps of Engineers Division Laboratory, f.o.b., at the following address:

Director
Waterways Experiment Section
U.S. Army Corps of Engineers

Coordination for each specific test, exact delivery location and dates will be made through the Area Office.

7. COMPLETION INSPECTION. At the completion of all work or any increment thereof established by a completion time stated elsewhere in the specifications, the Contractor shall conduct a completion inspection of the work and develop a punch list of items which do not conform to the approved plans and specifications. Such a list shall be included in the quality control documentation, as required by paragraph: DOCUMENTATION below, and shall include the estimated date by which the deficiencies will be corrected. The quality

control manager or staff shall make a second completion inspection at each site to ascertain that all deficiencies have been corrected and so notify the Contracting Officer's Representative. The completion inspection and any deficiency corrections required by this paragraph will be accomplished within the time stated for completion of the entire work or any particular increment thereof if the project is divided into increments by separate completion dates.

8. DOCUMENTATION. The Contractor shall maintain correct records of quality control operations, activities, and tests performed including the work of suppliers and subcontractors. The Contractor shall maintain daily logs of field activities and record health and safety, quality control, and other activity-related issues. In addition, these records shall include factual evidence that the required activities have been performed, including but not limited to the following:

- a. Contractor/subcontractor and their area of responsibility.
- b. Operating plant/equipment with hours worked, idle, or down for repair.
- c. Work performed today, giving location, description, and by whom.
- d. Test and/or control activities performed with results and references to specifications/plan requirements. The control phase should be identified (Preparatory, Initial, Follow-up). List deficiencies noted along with corrective action.
- e. Material received with statement as to its acceptability and storage.
- f. Identify submittals reviewed, with contract reference, by whom, and action taken.
- g. Off-site surveillance activities, including actions taken.
- h. Job safety evaluations stating what was checked, results, and instructions or corrective actions.
- i. List instructions given/received and conflicts in plans and/or specifications.
- j. Contractor's verification statement.
- k. These records shall indicate a description of trades working on the project; the number of personnel working; weather conditions encountered; and any delays encountered. These records shall cover both conforming and deficient features and shall include a statement that equipment and materials incorporated in the work and workmanship comply with the contract. The original and one copy of these records in report form shall be furnished to the Government daily within 24 hours after the date(s) covered by the report, except that reports need not be submitted for days on which no work is performed. As a minimum, one report shall be prepared and submitted for every seven days of no work and on the last day of a no work period. All calendar days shall be accounted for throughout the life of the contract. The first report following a day of no work shall be for that day only. Reports shall be signed and dated by the quality control manager. The report from the quality control manager shall include copies of test reports and copies of reports prepared by all subordinate quality control personnel.

9. NOTIFICATION OF NONCOMPLIANCE. The Contracting Officer will notify the Contractor of any noncompliance with the foregoing requirements. The Contractor shall, after receipt of such notice, immediately take corrective action. Such notice, when delivered to the Contractor or his representative at the site of the

work, shall be deemed sufficient for the purpose of notification. If the Contractor fails or refuses to comply promptly, the Contracting Officer may issue an order stopping all or part of the work until satisfactory corrective action has been taken. No part of the time lost due to any such stop orders shall be made the subject of claim for extension of time or for excess costs or damage by the Contractor.

10. CONTRACTOR PROJECT MANAGEMENT SYSTEM.

10.1 General.

10.1.1 The Contractor project Management System is included to assure adequate planning and execution of the work, to assist the Contracting Officer on appraising the reasonableness of the schedule, to evaluate progress of the work, and make progress payments, and to make decisions relative to time and/or cost adjustments which may result from changes in the work.

10.1.2 The management system is to be based on a computerized Network Analysis (Critical Path Method) operated by on-site personnel at terminals located in the Contractors's on-site office. On-site management shall be capable of using the system to address all project activities and resources on a real time interactive basis and be capable of rapidly evaluating alternative scenarios which will optimize project management. Evidence of technical expertise of on-site personnel with the proposed computerized Network Analysis System shall be submitted for Contracting Officer's approval prior to on-site work.

10.1.3 The Contractor shall resource load all work activities. As a minimum, resource loading shall identify equipment, management, skilled and unskilled labor requirements. The Contractor may at his option decide on greater detail for his own purposes, but if this option is elected, the system must be able to consolidate resources into the above defined categories for use by the Contracting Officer.

10.1.4 The Contractor shall incorporate any and all milestone and contract required events which may be specified elsewhere within these specifications. Should milestone events be not specifically identified by the Government within these specifications, the Contractor shall identify at least five percent of the network activities and designate them as milestone activities.

10.1.5 The Contractor Project Management System is to be staffed and prepared pursuant of CONTRACT CLAUSE: SCHEDULE FOR CONSTRUCTION CONTRACTS, and CONTRACT CLAUSE: SUPERINTENDENT BY THE CONTRACTOR. In preparing this system the Contractor assume responsibility for conformance with contract requirements, planning, sequencing of work, and determining the construction means and methods.

10.2 Submission and Approval. Submission and approval of the system shall be as follows:

10.2.1 The complete network system consisting of the detailed network mathematical analysis (including on-site manpower loading schedule) and network logic diagrams shall be submitted for approval within thirty (30) calendar days after receipt of Notice to Proceed. This shall be submitted in assembled hardcopy paper format and via 90 mm HD (3 1/2" High Density) floppy disk to allow restoring on Government Computers in accordance with the Corps of Engineers Standard Data Exchange Format as described in ER 1-1-11.

10.2.2 The Contractor shall participate in a review and evaluation of the proposed network logic diagrams and mathematical analysis by the Contracting Officer. Any revisions necessary as a result of this review shall be resubmitted for approval of the Contracting Officer within three (3) calendar days after the

conference. The approved schedule shall be used by the Contractor for planning, organizing and directing the work, reporting progress, and requesting payment for work accomplished.

10.3 Network Modifications.

10.3.1 In those cases where the contract performance is delayed due to causes beyond the control of the Contractor, and a time extension may be allowable under one or more of the CONTRACT CLAUSES: CHANGES, or DIFFERING SITE CONDITIONS, or DEFAULT (FIXED PRICE CONSTRUCTION), or SUSPENSION OF WORK, or other applicable clauses, as a condition recedent to granting a time extension, the Contractor shall submit a time proposal in such format as to identify the specific subnet diagram and activities affected.

10.3.2 Change order proposals shall include description or listing of all proposed changes to the network, by activity, and demonstrate the effect on the contract required completion date. A complete list of activities changed and subnet of activities affected by the change shall be submitted.

10.3.3 Float or slack is defined as the amount of time between the early start date and the late start date, or the early finish date and the late finish date, of any of the activities in the NAS schedule. Float or slack is not time for the exclusive use or benefit of either the Government or the Contractor. Extensions of time for performance may be granted to the extent that equitable time adjustment for the activities affected exceed the total float or where otherwise justified, effect on contract completion can be shown. The contract completion date is fixed, and will be amended only if the modifications which include time are signed by the Contracting Officer.

10.3.4 Rapid resolution of change orders and the granting of other time extensions where authorized by the Contracting Officer is a critical part of the overall management system. Implementation of all justified activity and logic changes shall be made and reflected on the next monthly update after approval of the Contracting Officer.

10.3.5 If, in the opinion of the Contracting Officer, the current schedule no longer accurately reflects the Contractor's real plan for accomplishing the work, or no longer reflects a viable way of finishing the work on schedule, the Contractor shall be directed to revise the schedule and submit it for approval within seven (7) calendar days of direction.

10.4 Logic Diagrams and Reports.

10.4.1 Logic diagrams.

10.5 Logic diagrams shall show the order and interdependency of activities and sequence in which the work is to be accomplished as planned by the Contractor.

10.6 Detailed networks need not be timed scaled, but drafted to have a continuous flow from left to right, showing how the start of a given activity is dependent on the completion of preceding activities, and how its completion restricts the start of the following activities.

10.7 An assembled logic diagram of the complete project shall be submitted with the initial NAS, showing each activity's identifying numbers, duration and description, with the critical path easily identified. Updated assembled diagrams will be provided as required by logic changes (but not more frequently than the monthly update). The logic diagram shall be plotted on architectural size E paper.

10.8 In addition to the detailed schedule, a summary schedule shall be developed by the Contractor. The summary schedule shall consist of minimum thirty (30) activities and maximum of 100 activities, and be updated monthly.

10.8.1 Reports.

10.9 After the network approval, the Contractor shall review and evaluate the actual progress with the Contracting Officer's representative on a weekly basis, and submit any updated weekly reports three (3) workdays after the meeting.

10.10 Three (3) weekly reports, selected from specific items of the menu will be required, for specified time window of the project (such as the next two weeks). These reports must be flexible in format, allowing generation of reports relating specifically to critical work areas, or areas of particular interest. The Government will identify the subject of the requested reports for the following week at a weekly review meeting. All activities involving the Government that affect progress will be coded to allow a separate report.

10.11 Monthly update reports will be submitted at midmonth showing status and actual start and finish dates of project activities, and will be capable of comparing the current status with the approved base schedule. Each monthly update report shall be uniquely identified and shall be stored on the Contractor's computer until the final pay estimate is processed. The content of the monthly update shall be flexible to show items listed in the menu. The midmonth report shall be used for partial payments.

10.12 A meeting shall be held three (3) workdays before the delivery of the midmonth report to discuss all input data. If the Contractor desires to make changes in his method of operation and scheduling, he shall clearly present the proposed changes.

10.13 A narrative report shall be submitted with midmonth report indicating current and anticipated problems, delaying factors, and conditions that are impacting the Contractor's work effort. An analysis showing the reasons for the delay/gain and their impact upon the current schedule shall be included. When it is apparent the scheduled milestone(s) and completion date(s) will not be met, the Contractor shall propose specific methods he intends to implement to bring the project back on schedule at no cost to the Government. Such measure may include but are not limited to:

a. Increasing construction manpower in such quantities and crafts as will substantially eliminate the backlog of work effort.

b. Increasing the number of working hours per shift; shifts per workday; workdays per week; the amount of construction equipment; or any combination thereof.

c. Rescheduling of activities to achieve maximum practical concurrence of work shifts.

10.14 The Contractor shall implement such procedures as may be necessary for the active participation by his subcontractors in preparing and updating the schedule. Subcontractors shall be provided with schedules which identify the interfaces of their work with the work of others. At minimum, the Contractor shall provide bar graphs to each major subcontractor showing activity times with plots on an Early Start basis. Copies of these schedules shall also be provided to the Contracting Officer. The relationship between subcontractor and interdependency or work shall be managed by the Contractor. When these interdependencies are violated or impaired, the Contractor shall identify the problem, resolve it, and provide the information to the Contracting Officer as part of the monthly report.

10.15 Payment Requests.

10.15.1 The monthly update report shall be used as a basis for the monthly partial pay estimate. The report will state the cost, actual percent complete, and current value of partially completed or completed work. Subtotals from subnets representing separate areas of construction will be given, along with a grand dollar value of work completed for the project.

10.15.2 The first payment shall not be made until the Network Analysis Schedule has been approved by the Contracting Officer. If, in the judgment of the Contracting Officer, The Contractor fails or refuses to provide an approved schedule and other progress or input data specified, the Contractor shall be deemed not to have provided the required information upon which progress payments may be made, and no payment request will be honored.

10.15.3 Activities submitted for payment shall be based on the approved network activities and monetary amount. No payment shall be made for activities conducted in deviation of the approved logic.

10.15.4 Payment for activities conducted when previously dependent activities have not been completed or accepted due to quality defects shall be restricted at the discretion of the Contracting Officer, and may be the basis for a resubmittal of the logic diagram.

11. IMPLEMENTATION OF GOVERNMENT RESIDENT MANAGEMENT SYSTEM. The Contractor shall utilize a Government furnished CQC Programming Module (A computerized executable file which is DOS based and operates on a minimum of 80386 IBM compatible computers. The Module includes a Daily CQC Reporting System form which must also be used. This form may be in addition to other Contractor desired reporting forms. However, all other such reporting forms shall be consolidated into this one Government specified Daily CQC Report Form. The Contractor will also be required to complete Government-Furnished Module elements which includes, but is not limited to, Prime Contractor staffing; letter codes; planned cumulative progress earnings; subcontractor information showing trade, name, address, point-of-contact, and insurance expiration dates; definable features of work; pay activity and activity information; required Quality Control tests tied to specific specification paragraphs and contractor activities; Installed Property Listing, Transfer Property Listing and submittal information relating to individual activities; planned User Schooling tied to specification section, description, activity number, review period and expected procurement period. The sum of all activity values shall equal the contract amount, and all Bid Items, Options and Additives shall be separately identified, in accordance with the "Bidding Schedule". Bid Items may include multiple Activities, but Activities may only be assigned to one such Bid Item. This Module shall be completed to the satisfaction of the Contracting Officer prior to any contract payment (except for Bonds, Insurance and/or Mobilization, as approved by the Contracting Officer) and shall be updated as required.

11.1 During the course of the contract, the Contractor will receive various Quality Assurance comments from the Government that will reflect corrections needed to Contractor activities or reflect outstanding or future items needing the attention of the Contractor. The Contractor will acknowledge receipt of these comments by specific number reference on his Daily CQC Report and will also reflect on his Daily CQC Report when these items are specifically completed or corrected to permit Government verification.

11.2 The Contractor's schedule system shall include, as specific and separate activities, all Preparatory Phase Meetings (inspections); all O&M Manuals; and all Test Plans of Electrical and Mechanical Equipment or Systems that require validation testing or instructions to Government Representatives.

-- End of Section --

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DIVISION 02 - SITE WORK

SECTION 02700

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SECTION 02700

SIDE DRAINS

PART 1 GENERAL

1.1 REFERENCES

The publications listed below form a part of this specification to the extent referenced. The publications are referred to in the text by basic designation only.

AMERICAN ASSOCIATION OF STATE HIGHWAY AND TRANSPORTATION OFFICIALS
(AASHTO)

- | | |
|--------------|---|
| AASHTO HB-16 | (1996) Standard Specifications for Highway Bridges |
| AASHTO M 190 | (1995) Bituminous Coated Corrugated Metal Culvert Pipe and Pipe Arches |
| AASHTO M 243 | (1996) Field Applied Coating of Corrugated Metal Structural Plate for Pipe, Pipe-Arches, and Arches |

AMERICAN SOCIETY FOR TESTING AND MATERIALS (ASTM)

- | | |
|-------------------|---|
| ASTM A 760/A 760M | (1997) Corrugated Steel Pipe, Metallic-Coated for Sewers and Drains |
| ASTM A 798/A 798M | (1997a) Installing Factory-Made Corrugated Steel Pipe for Sewers and Other Applications |
| ASTM D 1557 | (1998) Laboratory Compaction Characteristics of Soil Using Modified Effort (56,000 ft-lbf/cu. ft. (2,700 kN-m/cu.m.)) |
| ASTM D 2167 | (1994) Density and Unit Weight of Soil in Place by the Rubber Balloon Method |
| ASTM D 2922 | (1996el) Density of Soil and Soil-Aggregate in Place by Nuclear Methods (Shallow Depth) |
| ASTM D 3017 | (1988; R 1996el) Water Content of Soil and Rock in Place by Nuclear Methods (Shallow Depth) |

1.2 SUBMITTALS

Government approval is required for submittals with a "GA" designation; submittals having an "FIO" designation are for information only. The following shall be submitted in accordance with Section 01330 SUBMITTAL PROCEDURES:

SD-03 Product Data

Placing Pipe ; FIO

Printed copies of the manufacturer's recommendations for installation procedures of the material being placed, prior to installation.

SD-07 Certificates

Pipeline Testing ; GA

Hydrostatic Test on Watertight Joints ; FIO

Determination of Density ; FIO

Certified copies of test reports demonstrating conformance to applicable pipe specifications, before pipe is installed. Certification on the ability of frame and cover or gratings to carry the imposed live load.

1.3 DELIVERY, STORAGE, AND HANDLING

1.3.1 Delivery and Storage

Materials delivered to site shall be inspected for damage, unloaded, and stored with a minimum of handling. Materials shall not be stored directly on the ground. The inside of pipes and fittings shall be kept free of dirt and debris. The Contractor shall have a copy of the manufacturer's instructions available at the construction site at all times and shall follow these instructions unless directed otherwise by the Contracting Officer.

1.3.2 Handling

Materials shall be handled in a manner that ensures delivery to the trench in sound, undamaged condition. Pipe shall be carried to the trench, not dragged.

PART 2 PRODUCTS

2.1 PIPE FOR CULVERTS AND STORM DRAINS

Pipe for storm drains shall be of the sizes indicated and shall conform to the requirements specified.

2.1.1 Fully Bituminous Coated Corrugated Steel Pipe

AASHTO M 190 Type A and ASTM A 760/A 760M, zinc or aluminum (Type 2) coated pipe of Type I pipe with annular 68 by 13 mm corrugations.

2.2 HYDROSTATIC TEST ON WATERTIGHT JOINTS

A hydrostatic test shall be made on the watertight joint system or coupling band type proposed. The moment strength required of the joint is expressed as 15 percent of the calculated moment capacity of the pipe on a transverse section remote from the joint by the AASHTO HB-16 (Division II, Section 26). The pipe shall be supported for the hydrostatic test with the joint located at the point which develops 15 percent of the moment capacity of the pipe based on the allowable span in meters for the pipe flowing full or 54,233

Newton meters (40,000 foot-pounds), whichever is less. Performance requirements shall be met at an internal hydrostatic pressure of 69 kPa (10 psi) for a 10 minute period for both annular corrugated metal pipe and helical corrugated metal pipe with factory reformed ends.

PART 3 EXECUTION

3.1 TRENCHING FOR PIPE

The width of trenches at any point below the top of the pipe shall be not greater than the outside diameter of the pipe plus 200 mm to permit satisfactory jointing and thorough tamping of the bedding material under and around the pipe. Sheeting and bracing, where required, shall be placed within the trench. Contractor shall not overexcavate.

3.2 BEDDING

The bedding surface for the pipe shall provide a firm foundation of uniform density throughout the entire length of the pipe.

3.2.1 Corrugated Metal Pipe

Bedding for corrugated metal pipe shall be in accordance with [ASTM A 798/A 798M](#). It is not required to shape the bedding to the pipe geometry.

3.3 PLACING PIPE

Each pipe shall be thoroughly examined before being laid; defective or damaged pipe shall not be used. Pipelines shall be laid to the grades and alignment indicated. Proper facilities shall be provided for lowering sections of pipe into trenches. Lifting lugs in vertically elongated metal pipe shall be placed in the same vertical plane as the major axis of the pipe. Pipe shall not be laid in water, and pipe shall not be laid when trench conditions or weather are unsuitable for such work. Diversion of drainage or dewatering of trenches during construction shall be provided as necessary. Deflection of installed pipe shall not exceed 5 percent.

Not less than 30 days after the completion of backfilling, the Government may perform a deflection test on the entire length of installed flexible pipe using a mandrel or other suitable device. Installed flexible pipe showing deflections greater than those indicated above shall be retested by a run from the opposite direction. If the retest also fails, the suspect pipe shall be replaced at no cost to the Government.

3.3.1 Corrugated Metal Pipe

Laying shall be with the separate sections joined firmly together, with the outside laps of circumferential joints pointing upstream, and with longitudinal laps on the sides. Any unprotected metal in the joints shall be coated with bituminous material as specified in [AASHTO M 190](#) or [AASHTO M 243](#). Interior coating shall be protected against damage from insertion or removal of struts or tie wires. Lifting lugs shall be used to facilitate moving pipe without damage to exterior or interior coatings. During transportation and installation, pipe and coupling bands shall be handled with care to preclude damage to the coating. Damaged coatings shall be repaired in accordance with the manufacturer's recommendations prior to placing backfill. Pipe on which coating has been damaged to such an extent

that satisfactory field repairs cannot be made shall be removed and replaced.

3.4 JOINTING

Transverse field joints shall be designed so that the successive connection of pipe sections will form a continuous line free of appreciable irregularities in the flow line. In addition, the joints shall meet the general performance requirements described in [ASTM A 798/A 798M](#). Suitable transverse field joints which satisfy the requirements for one or more of the joint performance categories can be obtained with the following types of connecting bands furnished with suitable band-end fastening devices: corrugated bands, bands with projections, flat bands, and bands of special design that engage factory reformed ends of corrugated pipe. The space between the pipe and connecting bands shall be kept free from dirt and grit so that corrugations fit snugly. The connecting band, while being tightened, shall be tapped with a soft-head mallet of wood, rubber or plastic, to take up slack and ensure a tight joint. Field joints for each type of corrugated metal pipe shall maintain pipe alignment during construction and prevent infiltration of fill material during the life of the installations. The type, size, and sheet thickness of the band and the size of angles or lugs and bolts shall be as indicated or where not indicated, shall be as specified in the applicable standards or specifications for the pipe.

3.5 BACKFILLING

3.5.1 Backfilling Pipe in Trenches

After the pipe has been properly bedded, selected material from excavation or borrow, at a moisture content that will facilitate compaction, shall be placed along both sides of pipe in layers not exceeding 150 mm in compacted depth. The backfill shall be brought up evenly on both sides of pipe for the full length of pipe. The fill shall be thoroughly compacted under the haunches of the pipe. Each layer shall be thoroughly compacted with mechanical tampers or rammers. This method of filling and compacting shall continue until the fill has reached an elevation of at least 300 mm above the top of the pipe. The remainder of the trench shall be backfilled and compacted by spreading and rolling or compacted by mechanical rammers or tampers in layers not exceeding 250 millimeters. Tests for density shall be made as necessary to ensure conformance to the compaction requirements specified below. Where it is necessary, in the opinion of the Contracting Officer, that sheeting or portions of bracing used be left in place, the contract will be adjusted accordingly. Untreated sheeting shall not be left in place beneath structures or pavements.

3.5.2 Movement of Construction Machinery

When compacting by rolling or operating heavy equipment parallel with the pipe, displacement of or damage to the pipe shall be avoided. Movement of construction machinery over a culvert or storm drain at any stage of construction shall be at the Contractor's risk. Any damaged pipe shall be repaired or replaced.

3.5.3 Compaction

Backfill over and around the pipe and backfill around and adjacent to drainage structures shall be compacted at the approved moisture content to the following applicable minimum density, which will be determined as specified below.

Density shall not be less than 90 percent of maximum density for cohesive material and 95 percent of maximum density for cohesionless material.

3.5.4 Determination of Density

Testing shall be the responsibility of the Contractor and performed at no additional cost to the Government. Testing shall be performed by an approved commercial testing laboratory or by the Contractor subject to approval. Tests shall be performed in sufficient number to ensure that specified density is being obtained. Laboratory tests for moisture-density relations shall be made in accordance with ASTM D 1557 except that mechanical tampers may be used provided the results are correlated with those obtained with the specified hand tamper. Field density tests shall be determined in accordance with ASTM D 2167 or ASTM D 2922. When ASTM D 2922 is used, the calibration curves shall be checked and adjusted, if necessary, using the sand cone method as described in paragraph Calibration of the referenced publications. ASTM D 2922 results in a wet unit weight of soil and when using this method ASTM D 3017 shall be used to determine the moisture content of the soil. The calibration curves furnished with the moisture gauges shall be checked along with density calibration checks as described in ASTM D 3017 or ASTM D 2922. Test results shall be furnished to the Contracting Officer. The calibration checks of both the density and moisture gauges shall be made at the beginning of a job on each different type of material encountered and at intervals as directed.

3.6 PIPELINE TESTING

Lines shall be tested for leakage by low pressure air or water testing or exfiltration tests, as appropriate. Low pressure air testing procedures for pipes shall use the pressures and testing times prescribed in ASTM C 828 or ASTM C 924M, after consultation with the pipe manufacturer. Testing of individual joints for leakage by low pressure air or water shall conform to ASTM C 1103M. Prior to exfiltration tests, the trench shall be backfilled up to at least the lower half of the pipe. If required, sufficient additional backfill shall be placed to prevent pipe movement during testing, leaving the joints uncovered to permit inspection. Visible leaks encountered shall be corrected regardless of leakage test results. An exfiltration test shall be made by filling the line to be tested with water so that a head of at least 600 mm is provided above both the water table and the top of the pipe at the upper end of the pipeline to be tested. The filled line shall be allowed to stand until the pipe has reached its maximum absorption, but not less than 4 hours. After absorption, the head shall be reestablished. The amount of water required to maintain this water level during a 2-hour test period shall be measured. Leakage as measured by the exfiltration test shall not exceed 9 mL per mm in diameter per 100 meters (0.2 gallons per inch in diameter per 100 feet) of pipeline per hour. When leakage exceeds the maximum amount specified, satisfactory correction shall be made and retesting accomplished. Testing, correcting, and retesting shall be made at no additional cost to the Government.

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SECTION 02950

TREES, SHRUBS, GROUND COVERS, AND VINES

PART 1 GENERAL

1.1 REFERENCES

The publications listed below form a part of this specification to the extent referenced. The publications are referred to in the text by basic designation only.

AMERICAN ASSOCIATION OF NURSERYMEN (AAN)

AAN-01 (1990) American Standard for Nursery Stock

AMERICAN SOCIETY FOR TESTING AND MATERIALS (ASTM)

ASTM D 2607 (1969) Peats, Mosses, Humus, and Related Products

COMMERCIAL ITEM DESCRIPTIONS (CID)

CID A-A-1909 (Basic; Notice 1) Fertilizer

1.2 SUBMITTALS

Government approval is required for submittals with a "GA" designation; submittals having an "FIO" designation are for information only. The following shall be submitted in accordance with Section 01300

SUBMITTAL PROCEDURES:

SD-01 Data

Erosion Control Material; GA

Manufacturer's literature discussing physical characteristics, application and installation instructions for edging material and erosion control material.

SD-07 Schedules

Application of Herbicide Material; GA

A list of the proposed herbicide application equipment to be used in performance of the planting work, including descriptive data and calibration tests.

SD-08 Statements

Delivery; FIO. Application of Herbicide Material; GA

The following work plans, before work is started.

- a. Delivery Schedule at least 10 days prior to the intended date of the first delivery.
- b. Herbicide Treatment Plan, giving proposed sequence of herbicide treatment work, before work is started. The herbicide trade name, chemical composition, formulation, concentration, application rate of active ingredients and methods of application for all materials

furnished, and the name and state license number of the state certified applicator shall be included.

SD-09 Reports

Agronomic Soils Analysis; FIO

Copies of laboratory reports stating the recommended fertilizer and admixtures for the type of soils and plants used for the project.

SD-13 Certificates

Soil Amendments; GA. Plants; GA. Herbicide; GA.

Certificates of compliance certifying that materials meet the requirements specified, prior to the delivery of materials. Reports for the following materials shall be included.

- a. Fertilizer: For chemical analysis and composition percent.
- b. Organic Amendment: For classification of total nitrogen and organic matter.
- c. Plant Materials: For botanical and common name, size, quantity by species, grade, nursery grown.
- d. Herbicide Material: For EPA registration number and registered uses.

SD-18 Records

Plant Establishment Period; GA. Maintenance Report; GA. Maintenance Instructions; GA.

- a. Maintenance Report. Written record of maintenance work performed and quantity of plant losses and replacements.
- b. Plant Establishment Period. Written calendar time period for the beginning of the plant establishment period.
- c. Maintenance Instruction. Written instructions for year-round care of installed plants.

1.2.1 Plant Material Acquisition Plan

Within thirty (30) calendar days of contract award outlining proposed methods of obtaining the required plant material species, sizes and quantities within the planting dates specified.

1.3 SOURCE INSPECTIONS

1.3.1 Plant Materials

Plant materials shall be subject to inspection at the growing site by the Contracting Officer.

1.4 SHIPMENT, DELIVERY, INSPECTION, STORAGE, AND HANDLING

1.4.1 Shipment

1.4.1.1 Preparation

Digging and preparation for shipment shall be done in a manner that will not cause shock or damage to branches, trunk, or root systems.

- a. Container-Grown (C) Plants: Container size shall be provided as recommended by AAN-01. Plants shall be grown in a container sufficiently long for new fibrous roots to have developed and for root mass to retain its shape and hold together when removed from container. Container shall be sufficiently rigid to hold ball shape and protect root mass during shipping.

1.4.1.2 Antidesiccant Application

Plants shall be sprayed with an antidesiccant as leaf budding occurs or when plant material has soft growth.

1.4.2 Delivery

1.4.2.1 Identification

Plants shall be identified with durable waterproof labels and weather-resistant ink. Plants shall have attached labels stating the correct plant name and size.

1.4.2.2 Protection During Delivery

Plants shall be protected during delivery to prevent desiccation of the plant or damage to the roots or balls. Branches of plants shall be protected by tying-in the branches and covering all exposed branches.

1.4.2.3 Topsoil

A soil test shall be provided for topsoil delivered to the site.

1.4.2.4 Soil Amendments

Soil amendments shall be delivered to the site in the original, unopened containers bearing the manufacturer's chemical analysis. In lieu of containers, soil amendments may be furnished in bulk. A chemical analysis shall be provided for bulk deliveries.

1.4.2.5 Herbicide

Herbicide materials shall be delivered to the site in the original unopened containers bearing legible labels indicating the Environmental Protection Agency (EPA) registration numbers and the registered uses.

1.4.3 Inspection

Plant material shall be inspected upon arrival at the jobsite by the Contracting Officer for conformity to the paragraph PLANTS and paragraph Shipment, and any unacceptable plant material shall be removed from the jobsite.

1.4.4 Storage

1.4.4.1 Plant Storage

Plants not installed on the day of arrival at the site shall be stored and protected in areas designated by the Contracting Officer. Plants shall be protected from exposure to wind and shall be shaded from the sun. Covering that will allow air to circulate and prevent internal heat from building up shall be provided. Bare-root plants shall be heeled-in. All plants shall be kept in a moist condition by watering with a fine mist spray until planted.

1.4.4.2 Storage of Other Materials

Soil amendments shall be stored in dry locations away from contaminants. Herbicide materials shall not be stored with other landscape materials. Storage of materials shall be in areas designated or as approved by the Contracting Officer.

1.4.5 Handling

Care shall be taken to avoid injury to plants. Materials shall not be dropped from vehicles. Balled and burlapped plants shall be handled carefully to avoid cracking or breaking the earth ball and container-grown plants shall be handled by the container. Plants shall not be handled by the trunk or stems.

1.4.5.1 Time Limitation

Limitation of time between installing plant and placing mulch is 48 hours.

1.5 WARRANTY

Furnished plants shall be guaranteed to be in a vigorous growing condition for a period of 12 months regardless of the contract time period. A plant shall be replaced as necessary under this guarantee. Transplanted existing plants require no guarantee. A written calendar time period for the guarantee of plant growth shall be furnished to the Contracting Officer.

PART 2 PRODUCTS

2.1 PLANTS

2.1.1 Varieties

Plants shall be nursery grown or plantation grown stock conforming to AAN-01 and shall be of the varieties specified in the plant list bearing botanical names listed in one or more of the publications listed under "Nomenclature" in AAN-01.

2.1.2 Substitutions

Substitutions will not be permitted without written request from the Contractor for approval by the Contracting Officer.

2.1.3 Growing Conditions

Plants shall be grown under climatic conditions similar to those in the locality of the project.

2.1.4 Quality

Well shaped, well grown, vigorous, healthy plants having healthy and well branched root systems shall be provided. Plants shall be provided free from disease, harmful insects and insect eggs, sun-scald injury, disfigurement and abrasion. Plants shall be provided that are typical of the species or variety and conforming to standards as set forth in AAN-01 and as specified herein.

2.1.4.1 Shade and Flowering Trees

A height relationship to caliper shall be provided as recommended by AAN-01. Height of branching should bear a relationship to the size and variety of tree specified and with the crown in good balance with the trunk. Trees shall not be "poled" or the leader removed.

- a. Single stem: Trunk shall be reasonably straight and symmetrical with crown and have a persistent main leader.
- b. Multi-stem: All countable stems, in aggregate, shall average the size specified. To be considered a stem, there should be no division of the trunk which branches more than 150 mm (six inches) from ground level.
- c. Specimen: A plant shall be provided that is well branched and pruned naturally according to the species. The form of growth desired, which may not be in accordance with natural growth habit, shall be as indicated.

2.1.4.2 Deciduous Shrub

Plants shall be provided that have the height and number of primary stems as recommended by AAN-01. An acceptable plant shall be well shaped with sufficient well-spaced side branches recognized by the trade as typical for the variety grown in the region.

2.1.4.3 Broadleaf Evergreen

Plants shall be provided that have ratio of height-to-spread as recommended by AAN-01. An acceptable plant shall be well shaped and recognized by the trade as typical for the variety grown in the region.

2.1.4.4 Groundcovers and Vines

Plants shall be provided with the minimum number of runners and length of runner as recommended by AAN-01. Plants shall be furnished that have heavy, well developed and balanced top with vigorous well developed root system and shall be furnished in containers.

2.1.5 Plants shall be furnished in sizes indicated. Plants larger in size than specified may be provided at no additional cost to the Government.

2.1.6 Measurement

Plant measurements shall be in accordance with AAN-01.

2.1.7 Acquisition

The Contractor shall be responsible for acquiring all plant material in the required species, sizes and quantities within the planting dates specified, either from nursery stock on-hand, by "Contract-Growing" or by other means approved by the Contracting Officer.

2.2 TOPSOIL

Topsoil shall be the existing surface soil stripped to a depth of 20 Cm and stockpiled on the site. Additional topsoil, if required, beyond that available from stripping operations, shall be obtained on-site from areas as directed by the Contracting Officer.

2.3 SOIL AMENDMENTS

Soil amendments consist of topsoil, fertilizer, and organic soil amendments. **The recommendations resulting from the agronomic soils tests shall take precedence over the minimum amendments and fertilizer specified below.**

2.3.1 Fertilizer

Fertilizer shall be commercial grade, free flowing, uniform in composition and conforming to CID A-A-1909.

2.3.1.1 Dry Fertilizer

- a. Granular fertilizer : Consists of nitrogen-phosphorous-potassium ratio: 12 percent nitrogen 12 percent phosphorous, and 12 percent potassium.

2.3.2 Organic Soil Amendments

2.3.2.1 Decomposed Wood Derivatives

Decomposed wood derivatives shall be ground bark, sawdust, or other wood waste material free of stones, sticks, and toxic substances harmful to plants and stabilized with nitrogen and having the following properties:

Particle size	Minimum percent by weight passing
No. 4 mesh screen	95
No. 8 mesh screen	80
Nitrogen Content	Minimum percent based on dry weight
Redwood Sawdust	0.5
Fir Sawdust	0.7
Fir or Pine Bark	1.0

2.4 MULCH

Mulch shall be free from weeds, mold and other deleterious materials.

2.4.1 Inert Mulch Material

Inert mulch materials shall be 254 mm (10 inches) to 304 mm (12 inches) riverbank stone.

2.5 GUYING AND STAKING MATERIAL

2.5.1 Stakes

Stakes for tree support shall be rough sawn wood, free from knots, rot, cross grain, or other defects that would impair the strength. Standard stakes shall be hardwood or fir treated with pentachlorophenol.

2.5.1.1 Bracing Stakes

Bracing stakes shall be ~~a minimum of 50 mm (2 inches) diameter by 2400 mm (8 feet) long.~~ in accordance with drawings.

2.5.2 Guying Material

2.5.2.1 Guying Wire

Guying wire shall be 12-gauge annealed galvanized steel wire.

2.5.3 Chafing Guard

Hose chafing guards shall be new or used 2-ply reinforced rubber or plastic hose and shall be all the same color on the project. Length shall be 1-1/2 times the circumference of the plant at its base.

2.5.4 Root Cages

Galvanized wire cylinder with bottom, minimum opening 50 mm (2 inches) - Size to accommodate full container - root ball size.

2.5.5 Vine ties

Vine ties shall be 4 mm wide plastic nursery tape.

2.6 WATER

Water shall not contain elements toxic to plant life.

2.7 ANTIDESICCANT

Antidesiccant shall be an emulsion that will provide a film over plant surfaces permeable enough to permit transpiration, and shall not damage the plant.

2.8 PESTICIDE

Herbicide shall be insecticide, herbicide, fungicide, nematocide, rodenticide, and miticide. Herbicide material shall be labeled for use and applied only as registered by EPA and approved herbicide, insecticide, fungicide, nematocide, rodenticide, and miticide.

PART 3 EXECUTION

3.1 EXAMINATION

3.1.1 Verify Grades

The Contracting Officer shall verify the finished grades are as indicated on drawings, and the placing of topsoil and smooth grading has been completed in accordance with Section 02210 GRADING.

3.1.2 Underground Obstructions to Planting

The location of underground utilities and facilities shall be verified. Damage to underground utilities and facilities shall be repaired at the Contractor's expense.

3.1.3 Agronomic Soils Analysis

Contractor is required to sample soils for planting areas at the rate of one sample per two acres and conduct all the agronomic soils tests. Tests shall be performed by Wallace Laboratories (365 Coral Circle, El Segundo, CA, 90245, (310) 615-0116), or an approved equal, and the final report shall include a fertility and suitability analysis with written recommendations for soil amendments, fertilizers, chemical conditioners and application rates for soil preparation and post-maintenance fertilization program. Contractor to furnish plant list and specifications to testing laboratory along with soil samples.

3.2 SITE PREPARATION

3.2.1 Layout

Plant material locations and bed outlines shall be staked on the project site before any excavation is made. Plant material locations may be adjusted by the Contracting Officer to meet field conditions.

3.2.2 Protection of Existing Vegetation

Existing trees and shrubbery that are beyond the limits of work shall be barricaded in a manner that will effectively protect them during planting operations.

3.3 EXCAVATION

3.3.1 Obstructions Below Ground or Poor Drainage

When obstructions below ground or poor drainage affect the contract operation, proposed adjustments to plant location, type of plant and planting method or drainage correction shall be submitted to and approved by the Contracting Officer.

3.3.2 Plant Pits

Plant pits shall be dug to produce vertical sides and flat, uncompacted bottoms.

When pits are dug with an auger and the sides of the pits become glazed, the glazed surface shall be scarified. The minimum allowable dimensions of plant pits shall be 150 mm (6 inches) deeper than the depth of ball or the depth of base roots; for ball or root spreads up to 600 mm, (2 feet,) pit diameters shall be twice the root spread; for ball or root spreads from 600 to 1200 mm, (2 to 4 feet,) pit diameters shall be 600 mm (2 feet) greater; for ball or root spreads over 1200 mm, (4 feet,) pit diameters shall be 1-1/2 times the ball root spread.

3.4 PERCOLATION TEST

Test for percolation shall be done to determine positive drainage of plant pits and beds. The Contracting Officer shall be notified in writing of all soil and drainage conditions detrimental to growth of plant material and shall submit proposal for correcting the condition.

3.5 PLANTING TIMES AND CONDITIONS

3.5.1 Planting Time

When approved by the Contracting Officer, planting shall be done between November 1 and February 1.

3.5.2 Planting Conditions

Planting operations shall be performed only during periods when beneficial results can be obtained. When drought, excessive moisture or other unsatisfactory conditions prevail, the work shall be stopped when directed. When special conditions warrant a variance to the planting operations, proposed planting times shall be submitted to and approved by the Contracting Officer.

3.6 INSTALLATION

3.6.1 Erosion Control

Where erosion control material is requested by contracting offices, material shall be installed in accordance with manufacturer's instructions. Placement of

the erosion control material shall be accomplished without damage to installed material or without deviation to finished grade.

3.6.2 Backfill Soil Mixture

The backfill soil mixture shall be a proportioned mixture thoroughly mixed by volume of topsoil and selected soil amendments as follows:

Topsoil 9 parts to 1 part decomposed wood derivative with 0.5 Kg of commercial fertilizer per cubic meter or mixture. ~~Plant tablets shall be added during backfill.~~ **Backfill soil mixture shall be revised as needed per agronomic soil analysis (see paragraph 1.2).**

3.6.3 Setting Plants

Plants shall be set plumb and held in position and centered within root cage until sufficient soil has been firmly placed around roots or ball. Plants shall be set in relation to surrounding grade so that they are even with the depth at which they were grown in the nursery, or container.

3.6.4 Container-Grown Plants

Non-biodegradable containers or platforms shall be removed without damage to the plant or root system. Biodegradable containers shall be split. Container stock shall be backfilled with the planting mixture to half the depth, tamped and watered. The remaining space shall be filled, tamped and watered with a 2" basin constructed.

3.6.5 Staking and Guying

3.6.5.1 One Bracing Stake

Trees 1.2 to 1.8 m (4 to 6 feet) tall shall be held in place with one bracing stake. The tree shall be held firmly to the stake with a double strand of wire.

A chafing guard shall be used where the wire contacts the tree. Bracing stakes shall be driven vertically into firm ground and shall not injure the ball or roots.

3.6.5.2 Three Guying Wires

Trees shall be held firmly in place with three guying lines of [double strand wire] [cable] spaced equidistantly around the tree. The line shall be anchored with ground stakes. The line shall be anchored to the tree at a point equal to one half its height. Chafing guards shall be used where the line contacts the tree. One turnbuckle shall be centered on each line for tree straightening purposes. Ground stakes shall be driven into firm ground outside the earth saucer and plant pit with the top of the stake flush with the ground surface.

3.6.6 Flags

A flag shall be securely fastened to each guying line to be visible by pedestrians.

3.6.7 Vines

Vines shall be tied on fences with loose plastic tape.

3.7 FINISHING

3.7.1 Mulch

River rock mulch within plant watering basins shall be spread to a minimum thickness from 250 mm (10 inches) to 300 mm (12 inches) within 48 hours after planting. Mulch shall be kept out of sidewalks and other facilities.

3.7.2 Water

Plants shall be watered as necessary to maintain an adequate supply of moisture within the root zone. Run-off, puddling and wilting shall be prevented.

3.7.3 Antidesiccant Application

Plants requiring further protection shall be sprayed with anti-desiccant in accordance with manufacturer's recommendations.

3.8 MAINTENANCE DURING PLANTING OPERATION

Installed plants shall be maintained in a healthy growing condition. Maintenance operations shall begin immediately after each plant is installed and shall continue until the plant establishment period commences. The maintenance includes watering, pruning, wound dressing, straightening and other necessary operations. Plant beds and earth saucers shall be kept free of undesired vegetation. Plants shall be checked for settlement and shall be reset proper grade as necessary. Run-off, puddling and wilting shall be prevented.

3.9 APPLICATION OF HERBICIDE MATERIAL

When herbicide becomes necessary to remove a disease or pest, a state-certified applicator shall apply required herbicide in accordance with State EPA label restrictions and recommendations. Hydraulic equipment shall be provided for the liquid application of herbicides with a leak-proof tank, positive agitation methods, controlled application pressure and metering gauges. A herbicide treatment plan shall be provided to the Contracting Officer as specified in paragraph SUBMITTALS.

3.10 RESTORATION AND CLEAN UP

3.10.1 Restoration

Natural areas, pavements and facilities that have been damaged from the planting operation shall be restored to original condition at the Contractor's expense.

3.10.2 Clean Up

Excess and waste material from the planting operation shall be removed and disposed of off the site. Adjacent paved areas shall be cleared.

3.11 PLANT ESTABLISHMENT PERIOD

3.11.1 Commencement

On completion of the last day of the planting operation, the plant establishment period for maintaining installed plants in a healthy growing condition shall commence and shall be in effect ~~for the remaining contract time period not to exceed 12 60 months. When the planting operation extends over more than one season or there is a variance to the planting times, plant establishment periods shall be established for the work completed, as directed.~~ Written calendar time period shall be furnished to the Contracting Officer for the beginning of the plant establishment period. When there is more than one plant establishment period, describe the boundaries of the planted area covered for each period.

3.11.2 Maintenance During Establishment Period

3.11.2.1 General

Maintenance of plants shall include straightening plants, tightening stakes and guying material, protecting plant areas from erosion, maintaining erosion control material, supplementing mulch, removing dead or broken tip growth by pruning, maintaining edging of beds, checking for girdling of plants and maintaining plant labels, watering, weeding, removing and replacing unhealthy plants.

3.11.2.2 Water

The plants shall be watered as necessary to maintain an adequate supply of moisture within the root zone. An adequate supply of moisture is estimated to be the equivalent of one inch of absorbed water per week delivered in the form of natural rain or augmented as required by periodic waterings. Run-off, puddling and wilting shall be prevented. Water application shall be reduced during the fourth and fifth year to match the ETO of the third year.

3.11.2.3 Unhealthy Plants

A plant shall be considered unhealthy or dead when the main leader has died back, or 25 percent of the crown is dead. Determine the cause for an unhealthy plant.

Unhealthy or dead plants shall be removed immediately and shall be replaced as soon as seasonal conditions permit.

3.11.2.4 Settlement

Topsoil shall be added to maintain grade and to maintain earth saucers. Serious settlement affecting the setting of the plant in relation to the depth at which it was grown requires replanting in accordance with paragraph INSTALLATION.

3.11.2.5 Herbicide Treatment

Treatment for diseases or pest shall be in accordance with paragraph APPLICATION OF PESTICIDE MATERIAL.

3.11.2.6 Maintenance Report

A written record shall be furnished to the Contracting Officer of the maintenance work performed, the quality of plant losses, cause for plant loss and replacements made on each site visit.

3.11.2.7 Maintenance Instructions

Written instructions shall be furnished to the Contracting Officer for year-round care of installed plants.

3.11.3 Replacement Plants

Plants shall be provided for replacement in accordance with paragraph PLANTS. Replacement plants shall be installed in accordance with paragraph INSTALLATION.

No extended plant establishment period shall be required for replacement plants.

A plant will be replaced in accordance with paragraph UNHEALTHY PLANTS.

3.12 FINAL ACCEPTANCE

3.12.1 Preliminary Inspection

Prior to completion of the plant establishment period, a preliminary inspection shall be held by the Contracting Officer. Time for the inspection will be established in writing. The quantity and type of plants installed and the

acceptability of the plants in accordance with the plant establishment period shall be determined.

3.12.2 Final Inspection

A final inspection shall be held by the Contracting Officer to determine that deficiencies noted in the preliminary inspection have been corrected. Time for the inspection shall be established in writing. Acceptance of the planting operation is subject to the guarantee of plant growth.

-- End of Section --

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SECTION 03101

FORMWORK FOR CONCRETE

PART 1 GENERAL

1.1 REFERENCES

The publications listed below form a part of this specification to the extent referenced. The publications are referred to in the text by basic designation only.

AMERICAN CONCRETE INSTITUTE (ACI)

ACI 347R (1994) Guide for Formwork for Concrete

AMERICAN SOCIETY FOR TESTING AND MATERIALS (ASTM)

ASTM C 31 (1991) Making and Curing Concrete Test Specimens in the Field

ASTM C 39 (1993a) Compressive Strength of Cylindrical Concrete Specimens

ASTM C 1077 (1995b) Standard Practice for Laboratories Testing Concrete and Concrete Aggregates for Use in Construction and Criteria for Laboratory Evaluation

DEPARTMENT OF COMMERCE (DOC)

DOC PS 1 (1983) Construction and Industrial Plywood

1.2 DESIGN REQUIREMENTS

The design, engineering, and construction of the formwork shall be the responsibility of the Contractor. The formwork shall be designed for anticipated live and dead loads, lateral pressure, and allowable stresses in accordance with Chapter 1 of ACI 347R. Forms shall have sufficient strength to withstand the pressure resulting from placement and vibration of the concrete. The formwork shall be designed as a complete system with consideration given to the effects of cementitious materials and mixture additives such as fly ash, cement type, accelerators, retarders, air entrainment, and others. The adequacy of formwork design and construction shall be monitored prior to and during concrete placement as part of the Contractor's approved Quality Control Plan.

1.3 SUBMITTALS

Government approval is required for all submittals with a "GA" designation; submittals having an "FIO" designation are for information only. The following shall be submitted in accordance with Section 01300 SUBMITTAL DESCRIPTIONS, paragraph SUBMITTAL PROCEDURES:

SD-01 Data

Materials; FIO.

Manufacturer's literature shall be submitted for form-lining materials.

SD-09 Reports

Inspection; FIO.

The Contractor shall submit field inspection reports for concrete forms and embedded items.

SD-14 Samples

Sample Panels; GA.

After shop drawings have been reviewed, sample panels for Class C finish shall be built on the project site where directed.

PART 2 PRODUCTS

2.1 MATERIALS

2.1.1 Class "C" Finish

This class of finish shall apply to exposed concrete surfaces. The form facing may be either tongue-and-groove lumber, plywood, concrete form hard board or steel. Wood form facing for curved or warped surfaces shall be composed of splines of lumber which can be bent to the required shape without splitting or cracking.

2.1.2 Class "D" Finish

This class of finish shall apply to all surfaces which will be permanently concealed after construction. The form facing may be of wood or steel.

2.1.3 Form Coating

Form coating shall be commercial formulation that will not bond with, stain, cause deterioration, or any other damage to concrete surfaces. The coating shall not impair subsequent treatment of concrete surfaces depending upon bond or adhesion nor impede the wetting of surfaces to be cured with water or curing compounds. If special form liners are to be used, the Contractor shall follow the recommendation of the form coating manufacturer.

2.2 ACCESSORIES

Ties and other similar form accessories to be partially or wholly embedded in the concrete shall be of a commercially manufactured type. After the ends or end fasteners have been removed, the embedded portion of metal ties shall terminate not less than 50 mm from any concrete surface either exposed to view or exposed to water. Removable tie rods shall not be allowed. Plastic snap ties may be used in locations where the surface will not be exposed to view. Form ties shall be constructed so that the ends or end fasteners can be removed without spalling the concrete.

PART 3 EXECUTION

3.1 INSTALLATION

3.1.1 Form Construction

Forms shall be constructed true to the structural design and required alignment. The form surface and joints shall be mortar tight and supported to achieve safe performance during construction, concrete placement, and form removal. The Contractor shall continuously monitor the alignment and stability of the forms during all phases to assure the finished product will meet the required surface class specified in paragraph FORMS AND FORM LINERS and tolerances of Section 03307: CONCRETE FOR MINOR STRUCTURES. Failure of any

supporting surface either due to surface texture, deflection or form collapse shall be the responsibility of the Contractor as will the replacement or correction of unsatisfactory surfaces. When forms for continuous surfaces are placed in successive units, care shall be taken to fit the forms over the completed surface to obtain accurate alignment of the surface and to prevent leakage of mortar. Forms shall not be re-used if there is any evidence of defects which would impair the quality of the resulting concrete surface. All surfaces of forms and embedded materials shall be cleaned of any mortar from previous concreting and all other foreign material before concrete is placed in them.

3.1.2 Chamfering

All exposed joints, edges and external corners shall be chamfered by molding placed in the forms unless the drawings specifically state that chamfering is to be omitted or as otherwise specified.

3.1.3 Coating

Forms for exposed or painted surfaces shall be coated with form oil or a form-release agent before the form or reinforcement is placed in final position. The coating shall be used as recommended in the manufacturer's instructions. Forms for unexposed surfaces may be wet with water in lieu of coating immediately before placing concrete, except that, in cold weather when freezing temperatures are anticipated, coating shall be mandatory. Surplus coating on form surfaces and coating on reinforcing steel and construction joints shall be removed before placing concrete.

3.2 FORM REMOVAL

Forms shall not be removed without approval. The minimal time required for concrete to reach a strength adequate for removal of formwork without risking the safety of workers or the quality of the concrete depends on a number of factors including, but not limited to, ambient temperature, concrete lift heights, type and amount of concrete admixture, and type and amount of cementitious material in the concrete. It is the responsibility of the Contractor to consider all applicable factors and leave the forms in place until it is safe to remove them. In any case forms shall not be removed unless the minimum time and minimum compressive strength requirements below are met, except as otherwise directed or specifically authorized. When conditions are such as to justify the requirement, forms will be required to remain in place for a longer period. All removal shall be accomplished in a manner which will prevent damage to the concrete and ensure the complete safety of the structure. Where forms support more than one element, the forms shall not be removed until the form removal criteria are met by all supported elements. Form removal shall be scheduled so that all necessary repairs can be performed as specified in Section 03307, paragraph Finishing Formed Surfaces. Evidence that concrete has gained sufficient strength to permit removal of forms shall be determined by tests on control cylinders. All control cylinders shall be stored in the structure or as near the structure as possible so they receive the same curing conditions and protection methods as given those portions of the structure they represent. Control cylinders shall be removed from the molds at an age of no more than 24 hours. All control cylinders shall be prepared and tested in accordance with ASTM C 31 and ASTM C 39 at the expense of the Contractor by an independent laboratory that complies with ASTM C 1077 and shall be tested within 4 hours after removal from the site.

3.2.1 Formwork Not Supporting Weight of Concrete

Formwork for walls, fish ladder, gravity structures, and other vertical type formwork not supporting the weight of concrete shall not be removed in less

than 24 hours after concrete placement is completed. The time depends on the temperature, lift heights, and type and amount of cementitious material in the concrete.

3.2.2 Formwork Supporting Weight of Concrete

Formwork supporting weight of concrete and shoring shall not be removed until structural members have acquired sufficient strength to safely support their own weight and any construction or other superimposed loads to which the supported concrete may be subjected. As a minimum, forms shall be left in place until control concrete test cylinders or maturity instrumentation indicate evidence the concrete has attained at least 70 percent of the compressive strength required for the structure in accordance with the quality and location requirements of Section 03307, paragraph CONCRETE MIXTURE PROPORTION.

3.3 INSPECTION

Forms and embedded items shall be inspected in sufficient time prior to each concrete placement by the Contractor in order to certify to the Contracting Officer that they are ready to receive concrete. The results of each inspection shall be reported in writing.

-- End of Section --

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SECTION 03307
CONCRETE FOR MINOR STRUCTURES

PART 1 GENERAL

1.1 REFERENCES

The publications listed below form a part of this specification to the extent referenced. The publications are referred to in the text by basic designation only.

ACI INTERNATIONAL (ACI)

- | | |
|--------------|--|
| ACI 305 | (1991) Hot Weather Concreting |
| ACI 318/318R | (1995) Building Code Requirements for Structural Concrete and Commentary |
| ACI 347R | (1994) Guide to Formwork for Concrete |

AMERICAN SOCIETY FOR TESTING AND MATERIALS (ASTM)

- | | |
|-------------------|---|
| ASTM A 615/A 615M | (1996a) Deformed and Plain Billet-Steel Bars for Concrete Reinforcement |
| ASTM C 31/A 31M | (1996) Making and Curing Concrete Test Specimens in the Field |
| ASTM C 33 | (1997) Concrete Aggregate |
| ASTM C 39 | (1996) Compressive Strength of Cylindrical Concrete Specimens |
| ASTM C 94 | (1998) Ready-Mixed Concrete |
| ASTM C 143 | (1997) Slump of Hydraulic Cement Concrete |
| ASTM C 150 | (1997) Portland Cement |
| ASTM C 171 | (1997) Sheet Materials for Curing Concrete |
| ASTM C 172 | (1997) Sampling Freshly Mixed Concrete |
| ASTM C 231 | (1997) Air Content of Freshly Mixed Concrete by the Pressure Method |
| ASTM C 260 | (1986) Air-Entraining Admixtures for Concrete |
| ASTM C 309 | (1998) Liquid Membrane-Forming Compounds for Curing Concrete |
| ASTM C 494 | (1998) Chemical Admixtures for Concrete |
| ASTM C 618 | (1998) Coal Fly Ash and Raw or Calcined Natural Pozzolan for Use as a Mineral Admixture in Concrete |
| ASTM C 685 | (1997) Concrete Made by Volumetric Batching and Continuous Mixing |
| ASTM C 920 | (1998) Elastomeric Joint Sealants |
| ASTM D 75 | (1987; R 1997) Sampling Aggregates |
| ASTM D 1752 | (1984; R 1996) Preformed Sponge Rubber and Cork Expansion Joint Fillers for Concrete Paving and Structural Construction |

CORPS OF ENGINEERS (COE)

COE CRD-C 400 (1963) Requirements for Water for Use in Mixing or
Curing Concrete

1.2 DESIGN AND PERFORMANCE REQUIREMENTS

The Government will maintain the option to sample and test joint sealer, joint filler material, aggregates and concrete to determine compliance with the specifications. The Contractor shall provide facilities and labor as may be necessary to assist the Government in procurement of representative test samples. Samples of aggregates will be obtained at the point of batching in accordance with ASTM D 75. Concrete will be sampled in accordance with ASTM C 172. Slump and air content will be determined in accordance with ASTM C 143 and ASTM C 231, respectively, when cylinders are molded. Compression test specimens will be made, cured, and transported in accordance with ASTM C 31. Compression test specimens will be tested in accordance with ASTM C 39. Samples for strength tests will be taken not less than once each shift in which concrete is produced from each class of concrete required. A minimum of three specimens will be made from each sample; two will be tested at 28 days for acceptance, and one will be tested at 7 days for information.

1.2.1 Strength

Acceptance test results will be the average strengths of two specimens tested at 28 days. The strength of the concrete will be considered satisfactory so long as the average of all set of three consecutive acceptance test (average of two cylinder results) equal or exceed the specified compressive strength, f'_c , and no individual acceptance test result falls below f'_c by more than 3.5 MPa (500 psi).

1.2.2 Construction Tolerances

A class AB@ finish will be applied to all surfaces which will be exposed to flowing water. A Class "D" finish shall apply to all surfaces which will be permanently concealed after construction. A Class "C" finish shall apply to all surfaces except those specified to receive a Class "B" or "D" finish. The surface requirements for the classes of finish required shall be as specified in ACI 347R.

1.2.3 Concrete Mixture Proportions

Concrete mixture proportions shall be the responsibility of the Contractor. Prior to concrete placement, the Contractor shall submit mixture proportions for approval that will produce concrete of the qualities required. In addition to the mixture proportion requirements indicated herein, concrete for fish ladder and walls **that will be exposed to view**, shall include coloring system. The color shall conform to U. S. Department of Agriculture Handbook 18-Soil Survey Manual with color 10 YR 6/2 of the Munsell color charts of Colorfull Concrete Color Code No. 3099 by Admixtures, Inc., 13651 East Live Oak Lane, Irwindale, CA. 91706 or equal. Mixture proportions shall include the dry weights of cementitious material(s); the nominal maximum size of the coarse aggregate; the specific gravities, absorptions, and saturated surface-dry weights of fine and coarse aggregates; the quantities, types, and names of admixtures; and quantity of water per cubic yard of concrete. All materials included in the mixture proportions shall be of the same type and from the same source as will be used on the project. Minimum compressive strengths and maximum water/cement ratios shall be as indicated in the table below. The maximum nominal size coarse aggregate shall be 25 mm (1 inch) for wall 38 mm (1-1/2 inches) for footings and invert, in accordance with ACI 318/318R. The air content shall be between 4 and 6 percent. The slump shall be between 50 and 127 mm (2 and 5 inches).

<u>Structural Element</u>	<u>Minimum 28-Day Compressive Strength (f_c) (psi)</u>	<u>Maximum Water/Cement Ratio</u>
Fish ladder Invert Slab and Walls	30 MPa	0.45
Other elements not describe elsewhere	25 MPa	0.55

1.3 SUBMITTALS

Government approval is required for all submittals with a "GA" designation; submittals having an "FIO" designation are for information only. The following shall be submitted in accordance with Section 01330 SUBMITTAL PROCEDURES:

SD-01 Data

Air-Entraining Admixture; FIO. Accelerating Admixture; FIO. Water-Reducing or Retarding Admixture; FIO. Curing Materials; FIO. Reinforcing Steel; FIO. Expansion Joint Filler Strips, Premolded; FIO. Joint Sealants - Field Molded Sealants; FIO. Manufacturer's literature is available from suppliers which demonstrates compliance with applicable specifications for the above materials.

Batching and Mixing Equipment; FIO.

Batching and mixing equipment will be accepted on the basis of manufacturer's data which demonstrates compliance with the applicable specifications.

Conveying and Placing Concrete; FIO.

The methods and equipment for transporting, handling, depositing, and consolidating the concrete shall be submitted prior to the first concrete placement.

SD-08 Statements

Formwork; FIO.

Formwork design shall be submitted prior to the first concrete placement.

SD-09 Reports

Aggregates; FIO.

Aggregates will be accepted on the basis of certificates of compliance and test reports that show the material(s) meets the quality and grading requirements of the specifications under which it is furnished.

Concrete Mixture Proportions; FIO.

Ten days prior to placement of concrete, the contractor shall submit the mixture proportions that will produce concrete of the quality required. Applicable test reports shall be submitted to verify that the concrete mixture proportions selected will produce concrete of the quality specified.

SD-13 Certificates

Cementitious Materials; FIO.

Certificates of compliance attesting that the concrete materials meet the requirements of the specifications shall be submitted in accordance with the Special Clause "CERTIFICATES OF COMPLIANCE". Cementitious material will be accepted on the basis of a manufacturer's certificate of compliance, accompanied by mill test reports that the material(s) meet the requirements of the specification under which it is furnished.

Aggregates; FIO.

Aggregates will be accepted on the basis of certificates of compliance and tests reports that show the material(s) meet the quality and grading requirements of the specifications under which it is furnished.

Batching and Mixing Equipment; FIO

Batching and mixing equipment will be accepted on the basis of manufacturer=s data which demonstrates compliance with the applicable specifications.

PART 2 PRODUCTS

2.1 MATERIALS

2.1.1 Cementitious Materials

Cementitious materials shall conform to the appropriate specifications listed:

2.1.1.1 Portland Cement

ASTM C 150, Type II, low alkali.

2.1.1.2 Pozzolan

Pozzolan shall conform to ASTM C 618, Class F, except that the loss on ignition shall be limited to 6 percent.

2.1.2 Aggregates

Aggregates shall meet the quality and grading requirements of ASTM C 33, Class Designations 4S or better.

2.1.3 Admixtures

Admixtures to be used, when required or approved, shall comply with the appropriate specification listed. Chemical admixtures that have been in storage at the project site for longer than 6 months or that have been subjected to freezing shall be retested at the expense of the contractor at the request of the Contracting Officer and shall be rejected if test results are not satisfactory.

2.1.3.1 Air-Entraining Admixture

Air-entraining admixture shall meet the requirements of ASTM C 260.

2.1.3.2 Water-Reducing or Retarding Admixture

Water-reducing or retarding admixture shall meet the requirements of ASTM C 494, Type A, B, or D.

2.1.4 Water

Water for mixing and curing shall be fresh, clean, potable, and free from injurious amounts of oil, acid, salt, or alkali, except that unpotable water may be used if it meets the requirements of COE CRD-C 400.

2.1.5 Reinforcing Steel

Reinforcing steel bar shall conform to the requirements of ASTM A 615/A 615M, Grade 60. Details of reinforcement not shown shall be in accordance with ACI 318/318R, Chapters 7 and 12.

2.1.6 Expansion Joint Filler Strips, Premolded

Expansion joint filler strips, premolded shall be sponge rubber conforming to ASTM D 1752, Type I.

2.1.7 Joint Sealants - Field Molded Sealants

Joint sealants - field molded sealants shall conform to ASTM C 920, Type M, Grade NS, Class 25, use NT for vertical joints and Type M, Grade P, Class 25, use T for horizontal joints. Bond-breaker material shall be polyethylene tape, coated paper, metal foil, or similar type materials. The backup material shall be compressible, nonshrink, nonreactive with the sealant, and a nonabsorptive material such as extruded butyl or polychloroprene foam rubber. Immediately prior to installation of field-molded sealants, the joint shall be cleaned of all debris and further cleaned using water, chemical solvents, or other means as recommended by the sealant manufacturer or directed.

2.1.8 Formwork

The design and engineering of the formwork as well as its construction, shall be the responsibility of the Contractor and shall conform to Section 03101.

2.1.9 Curing Materials

Curing materials shall conform to the following requirements.

2.1.9.1 Impervious Sheet Materials

Impervious sheet materials, ASTM C 171, type optional, except polyethylene film, if used, shall be white opaque.

2.1.9.2 Membrane-Forming Curing Compound

Membrane curing compound shall conform to ASTM C 309, Type 1-D for structures exposed to view, and Type 2, Class B for all other structures. Non-pigmented compound shall contain a fugitive dye. The loss of water for both pigmented and non-pigmented curing compound when tested shall be not more than 150 grams per square meter in 24 hours nor more than 450 grams pounds per square meter in 72 hours. In hot weather, concrete cured with non-pigmented curing compound shall be shaded from the direct rays of the sun for the first 3 days of the curing period.

PART 3 EXECUTION

3.1 PREPARATION

3.1.1 General

Construction joints shall be prepared to expose coarse aggregate, and the surface shall be clean, damp, and free of laitance. Ramps and walkways, as necessary, shall be constructed to allow safe and expeditious access for concrete and workmen. Snow, ice, standing or flowing water, loose particles, debris, and foreign matter shall be removed prior to placing concrete. Earth foundations shall be satisfactorily compacted and concrete shall not be placed on a spongy foundation. Spare vibrators shall be available. The entire preparation shall be inspected and accepted by the Government prior to placing.

3.1.2 Embedded Items

Reinforcement shall be secured in place; joints, anchors, and other embedded items shall have been positioned. Internal ties shall be arranged so that when the forms are removed all metal will be not less than 50 mm (2 inches) from concrete surfaces permanently exposed to view or exposed to water on the finished structures. Embedded items shall be free of oil and other foreign matters such as loose coatings or rust, paint, and scale. The embedding of wood in concrete will be permitted only when specifically authorized or

directed. All equipment needed to place, consolidate, protect, and cure the concrete shall be at the placement site and in good operating condition.

3.1.3 Formwork Installation

Forms shall conform to the requirements of Section 03101.

3.1.4 Production of Concrete

3.1.4.1 Ready-Mixed Concrete

Ready-mixed concrete shall conform to ASTM C 94 except as otherwise specified.

3.1.4.2 Concrete Made by Volumetric Batching and Continuous Mixing

Concrete made by volumetric batching and continuous mixing shall conform to ASTM C 685.

3.1.4.3 Batching and Mixing Equipment

The contractor shall have the option of using an on-site batching and mixing facility. The facility shall provide sufficient batching and mixing equipment capacity to prevent cold joints. The method of measuring materials, batching operation, and mixer shall be submitted for review. On-site plant shall conform to the requirements of either ASTM C 94 or ASTM C 685.

3.2 CONVEYING AND PLACING CONCRETE

Conveying and placing concrete shall conform to the following requirements.

3.2.1 General

Concrete placement shall not be permitted when weather conditions prevent proper placement and consolidation without approval. When concrete is mixed and/or transported by a truck mixer, the concrete shall be delivered to the site of the work and discharge shall be completed within 1-1/2 hours and shall not be placed at temperatures exceeding 29 degrees C (85 degrees F). Concrete shall be conveyed from the mixer to the forms as rapidly as practicable by methods which prevent segregation or loss of ingredients. Concrete shall be in place and consolidated within 15 minutes after discharge from the mixer. Concrete shall be deposited as close as possible to its final position in the forms and be so regulated that it may be effectively consolidated in horizontal layers 18 inches or less in thickness with a minimum of lateral movement. **Unless as otherwise indicated in the drawings, concrete shall be placed** at such a rate that the formation of cold joints will be prevented.

3.2.2 Consolidation

Each layer of concrete shall be consolidated by internal vibrating equipment. Internal vibration shall be systematically accomplished by inserting the vibrator through the fresh concrete in the layer below at a uniform spacing over the entire area of placement. The distance between insertions shall be approximately 1.5 times the radius of action of the vibrator and overlay the adjacent, just-vibrated area by approximately a few inches. The vibrator shall penetrate rapidly to the bottom of the layer and at least 152 mm (6 inches) into the layer below, if such a layer exists. It shall be held stationary until the concrete is consolidated and then withdrawn slowly at the rate of about 76 mm per second (3 inches per second).

3.2.3 Cold-Weather Requirements

No concrete placement shall be made when the ambient temperature is below 2 degrees C (35 degrees F) or if the ambient temperature is below 2 degrees C (40 degrees F) and falling. Suitable covering and other means as approved

shall be provided for maintaining the concrete at a temperature of at least 10 degrees C (50 degrees F) for not less than 72 hours after placing and at a temperature above freezing for the remainder of the curing period. Salt, chemicals, or other foreign materials shall not be mixed with the concrete to prevent freezing. Any concrete damaged by freezing shall be removed and replaced at the expense of the contractor.

3.2.4 Hot-Weather Requirements

When the rate of evaporation of surface moisture, as determined by use of Figure 2.1.5 of ACI 305, is expected to exceed 0.2 pound per square foot per hour, provisions for windbreaks, shading, fog spraying, or covering with a light-colored material shall be made in advance of placement, and such protective measures shall be taken as quickly as finishing operations will allow.

3.3 FINISHING

3.3.1 General

No finishing or repair will be done when either the concrete or the ambient temperature is below 10 degrees C (50 degrees F).

3.3.2 Finishing Formed Surfaces

All fins and loose materials shall be removed, and surface defects including tie holes shall be filled. All honeycomb areas and other defects shall be repaired. All unsound concrete shall be removed from areas to be repaired. Surface defects greater than 12 mm (1/2 inch) in diameter and holes left by removal of tie rods in all surfaces not to receive additional concrete shall be reamed or chipped and filled with dry-pack mortar. The prepared area shall be brush-coated with an approved epoxy resin or latex bonding compound or with a neat cement grout after dampening and filled with mortar or concrete. The cement used in mortar or concrete for repairs to all surfaces permanently exposed to view shall be a blend of Portland cement and white cement so that the final color when cured will be the same as adjacent concrete.

3.3.3 Finishing Unformed Surfaces

All unformed surfaces that are not to be covered by additional concrete or backfill shall be float finished to elevations shown, unless otherwise specified. Surfaces to receive additional concrete or backfill shall be brought to the elevations shown and left as a true and regular surface. Exterior surfaces shall be sloped for drainage unless otherwise shown. Joints shall be carefully made with a jointing tool. Unformed surfaces shall be finished to a tolerance of 10 mm (3/8 inch) for a float finish as determined by a 3.05 m (10 foot) straightedge placed on surfaces shown on the plans to be level or having a constant slope. Finishing shall not be performed while there is excess moisture or bleeding water on the surface. No water or cement shall be added to the surface during finishing.

3.3.3.1 Float Finish

Surfaces to be float finished shall be screeded and darbied or bullfloated to eliminate the ridges and to fill in the voids left by the screed. In addition, the darby or bullfloat shall fill all surface voids and only slightly embed the coarse aggregate below the surface of the fresh concrete. When the water sheen disappears and the concrete will support a person's weight without deep imprint, floating should be completed. Floating should embed large aggregates just beneath the surface, remove slight imperfections, humps, and voids to produce a plane surface, compact the concrete, and consolidate mortar at the surface.

3.3.3.2 Trowel Finish

A trowel finish shall be applied to the following surfaces: top of fish ladder walls and as indicated on the drawings. Concrete surfaces shall be finished with a float finish, and after surface moisture has disappeared, the surface shall be troweled to a smooth, even, dense finish free from blemishes including trowel marks. Tolerance shall be true planes within 5/16 inch in 10 feet as determined by a 10-foot straightedge placed anywhere on the slab in any direction.

3.3.3.3 Broom Finish

A broom finish shall be applied to horizontal surfaces in the ramp and at other locations as directed. The concrete shall be screeded and floated to required finish plane with no coarse aggregate visible. After surface moisture disappears, the surface shall be broomed or brushed with a broom or fiber bristle brush in a direction as directed.

3.3.3.4 Expansion and Contraction Joints

Expansion and contraction joints shall be made in accordance with Section 03150.

3.4 CURING AND PROTECTION

Beginning immediately after placement and continuing for at least 7 days, all concrete shall be cured and protected from premature drying, extremes in temperature, rapid temperature change, freezing, mechanical damage, and exposure to rain or flowing water. All materials and equipment needed for adequate curing and protection shall be available and at the site of the placement prior to the start of concrete placement. Preservation of moisture for concrete surfaces not in contact with forms shall be accomplished by one of the following methods:

- a. Application of impervious sheet material conforming to ASTM C 171. However, impervious sheet shall not be allowed for vertical walls.
- b. Application of membrane-forming curing compound conforming to ASTM C 309, Type 1-D shall be accomplished in accordance with manufacturer's instructions.

The preservation of moisture for concrete surfaces placed against wooden forms shall be accomplished by keeping the forms continuously wet for 7 days. If forms are removed prior to end of the required curing period, other curing methods shall be used for the balance of the curing period. During the period of protection removal, the temperature of the air in contact with the concrete shall not be allowed to drop more than -4 degrees C (25 degrees F) within a 24 hour period.

3.5 TESTS AND INSPECTIONS

3.5.1 General

The individuals who sample and test concrete as required in this specification shall have demonstrated a knowledge and ability to perform the necessary test procedures equivalent to the ACI minimum guidelines for certification of Concrete Field Testing Technicians, Grade I.

3.5.2 Inspection Details and Frequency of Testing

3.5.2.1 Preparations for Placing

Foundation or construction joints, forms, and embedded items shall be inspected in sufficient time prior to each concrete placement by the Contractor to certify that it is ready to receive concrete.

3.5.2.2 Air Content

Air content shall be checked at least twice during each shift that concrete is placed for each class of concrete required. Samples shall be obtained in accordance with ASTM C 172 and tested in accordance with ASTM C 231.

3.5.2.3 Slump

Slump shall be checked twice during each shift that concrete is produced for each class of concrete required. Samples shall be obtained in accordance with ASTM C 172 and tested in accordance with ASTM C 143.

3.5.2.4 Consolidation and Protection

The Contractor shall ensure that the concrete is properly consolidated, finished, protected, and cured.

3.5.3 Action Required

3.5.3.1 Placing

The placing foreman shall not permit placing to begin until he has verified that an adequate number of acceptable vibrators, which are in working order and have competent operators, are available. Placing shall not be continued if any pile of concrete is inadequately consolidated.

3.5.3.2 Air Content

Whenever a test result is outside the specification limits, the concrete shall not be delivered to the forms and an adjustment shall be made to the dosage of the air-entrainment admixture.

3.5.3.3 Slump

Whenever a test result is outside the specification limits, the concrete shall not be delivered to the forms and an adjustment should be made in the batch weights of water and fine aggregate. The adjustments are to be made so that the water-cement ratio does not exceed that specified in the submitted concrete mixture proportion.

3.5.4 Reports

The results of all tests and inspections conducted at the project site shall be reported informally at the end of each shift and in writing weekly and shall be delivered within 3 days after the end of each weekly reporting period. All concrete reports, including compressive strength, concrete temperatures, ambient temperatures, slump, air content, mix design number, test number and location of concrete placement shall be submitted in a spreadsheet format and on computer disk(s) to the Contracting Officer. The Contracting Officer has the right to examine all Contractor quality control records.

-- End of Section --